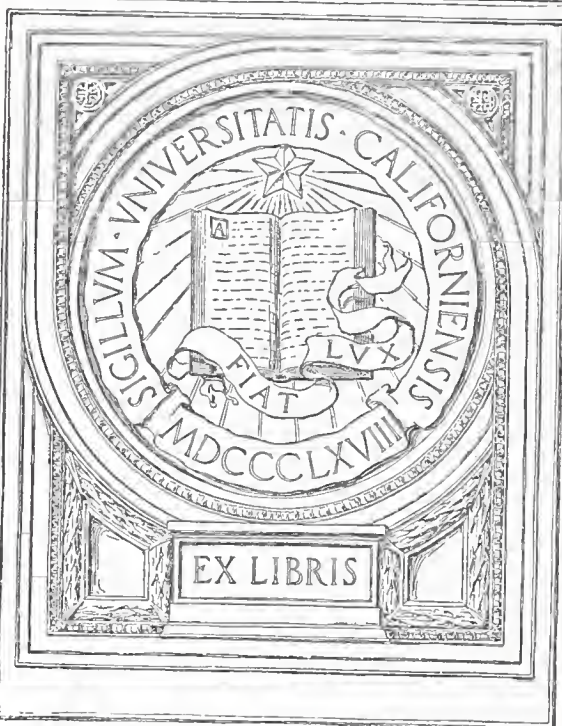



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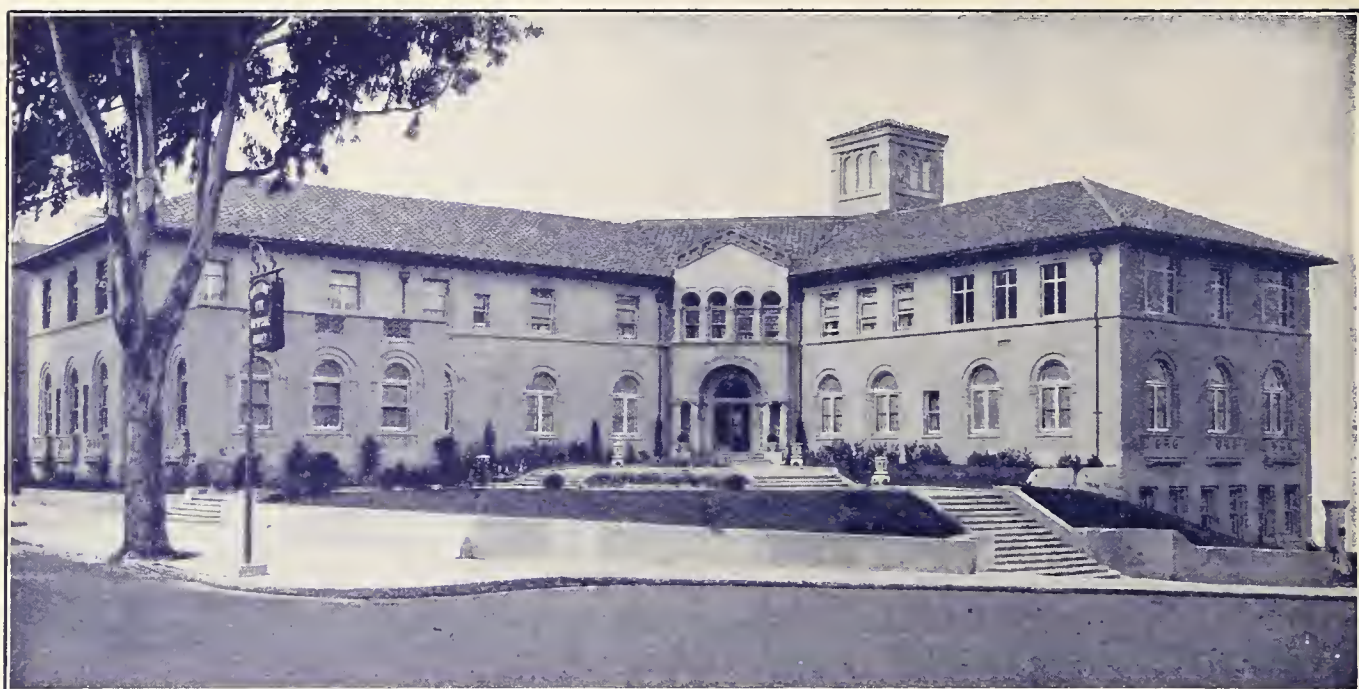
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‘ ‘ ‘

Key to Abbreviations

- Or.—Original Article.
 C. R.—Case Report.
 B. M.—Bedside Medicine.
 M. T.—Medicine Today.
 C. N.—Clinical Notes.
 L. M. H.—Lure of Medical History.

‘ ‘ ‘

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Sacramento, Box 1159
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Director, Giles S. Porter, Los Angeles.

Board of Medical Examiners of the State of California
San Francisco, 623 State Building
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510 West Sixth Street

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President, P. T. Phillips, Santa Cruz.
Secretary, C. B. Pinkham, 623 State Building, San Francisco.

Southern California Medical Association
President, Fred B. Clarke, 1006 Pacific Southwest Building, Long Beach.
Secretary, Carl R. Howson, 711 Merritt Bldg., 307 W. Eighth Street, Los Angeles.

California Northern District Medical Society
President, George H. Sanderson, 809 Medico-Dental Building, Stockton.

Secretary, D. Schuyler Pulford, Woodland Clinic, Woodland.

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J. U. GIESY, 701 Medical Arts Building, Salt Lake City.....Associate Editor for Utah
Place of next meeting, Salt Lake City, September 9-11, 1931.

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OAKS SANITARIUM
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Los Gatos, Calif.

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Limited General Hospital
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General Hospital
2200 Hayes Street, San Francisco, Calif.

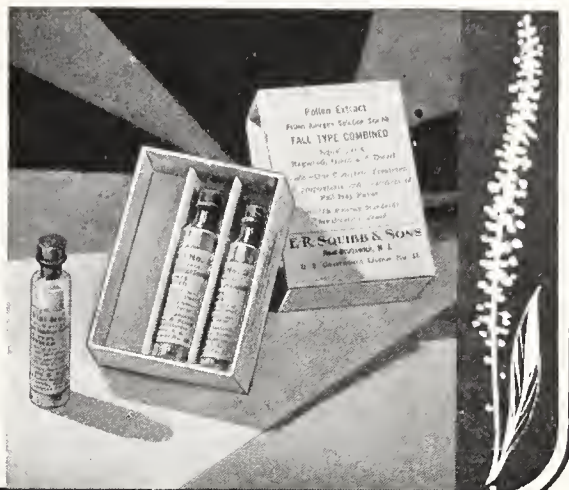
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SOUTHERN SIERRAS SANATORIUM
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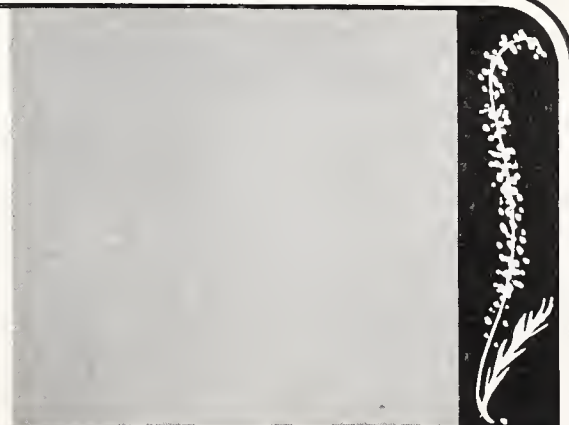
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Aid for Physicians in the Drought Area.—Announcement has been made that the board of trustees of the American Medical Association has taken steps to relieve the needs of doctors in the stricken area.

The secretary, Dr. Olin West, has been directed to investigate the conditions as they apply to the physicians.

This movement will be endorsed by the medical profession throughout the country.

Doctor Garrison of the Arkansas State Board of Health reports that Arkansas doctors have given the "limit" of their time, money, and medical resources to drought sufferers.

A previous report indicated that the Red Cross will not provide medical service for the sick in the drought area. This decision seems to be illogical. The people need medical service and doctors are as much entitled to remuneration as any other person employed to relieve suffering.—*New England Journal of Medicine*, March 5, 1931.

BOOK REVIEWS

List of Books Received

BOOKS RECEIVED

Resistance to Infectious Diseases. By Hans Zinsser, M. D., Professor of Bacteriology and Immunity, Medical School, Harvard University. Fourth edition, completely revised and reset. Cloth. Pp. 651. Price, \$7. New York: The Macmillan Company, 1931.

Textbook of Physical Therapy. By William Benham Snow, M. D., author of "A Manual of Electro-Static Modes of Application, Therapeutics, Radiography, and Radiotherapy." Cloth. Pp. 708, illustrated with 183 text cuts. Price, \$10 net. New York: Scientific Authors' Publishing Company, 1931.

Nutrition and Diet in Health and Disease. By James S. McLester, M. D., Professor of Medicine at the University of Alabama, Birmingham, Alabama. Second edition, revised and reset. Octavo of 891 pages. Cloth. Price, \$8.50 net. Philadelphia and London: W. B. Saunders Company, 1931.

Clinical Diagnosis by Laboratory Methods. By James Campbell Todd, Ph. B., M. D., late Professor of Clinical Pathology, University of Colorado, School of Medicine; and Arthur Hawley Sanford, A. M., M. D., Professor of Clinical Pathology, University of Minnesota (Mayo Foundation); head of Section on Clinical Laboratories, Mayo Clinic. Seventh edition, thoroughly revised. Cloth. Pp. 765 with 347 illustrations, 29 in colors. Price, \$6 net. Philadelphia and London: W. B. Saunders Company, 1931.

Fundamentals of Dermatology. By Alfred Schalek, M. D., Professor of Dermatology and Syphilology, University of Nebraska College of Medicine; formerly Assistant Professor of Dermatology, Rush Medical College. Second edition, thoroughly revised. Cloth. Pp. 247, illustrated with 58 engravings. Price, \$3 net. Philadelphia: Lea & Febiger, 1931.

Treatment of Injury by the General Practitioner. By Clay Ray Murray, M. D., F. A. C. S., Assistant Professor of Surgery, College of Physicians and Surgeons, Columbia University; Associate Visiting Surgeon, Presbyterian Hospital in the City of New York. In two volumes. Leather. Pp. 412, with 196 drawings by the author. Price, \$5. New York and London: Harper Brothers Publishers, 1931.

Health on the Farm and in the Village. A Review and Evaluation of the Cattaraugus County Health Demonstration, with Special Reference to Its Lessons for Other Rural Areas. By C. E. A. Winslow, Dr. P. H., Professor of Public Health, Yale School of Medicine. Cloth. Pp. 281. Price, \$1.00. New York: The Macmillan Company, 1931.

Food Allergy. Its Manifestations, Diagnosis and Treatment, with a General Discussion of Bronchial Asthma. By Albert H. Rowe, M. S., M. D., Lecturer in Medicine in the University of California Medical School, San Francisco, California; Chief of the Clinic for Allergic Diseases of the Alameda County Health Center, Oakland; Consultant in Allergic and Metabolic Diseases, Highland Hospital. Cloth. Pp. 442. Price, \$5 net. Philadelphia: Lea & Febiger, 1931.

Textbook of Histology. For Medical and Dental Students. By Eugene C. Piette, M. D., Pathologist and Director of the Laboratory of the West Suburban Hospital, Oak Park, Illinois; Consultant Pathologist of the Chicago State Hospital, Chicago. Cloth. Pp. 466, with 277 illustrations, some in color. Price, \$4.50 net. Philadelphia: F. A. Davis Company, 1931.

The Perils of Food Deficiency and Nature's Healing Bounty. By Natta Fisher Dugert and Bonnie Lucinda Fisher. Cloth. Pp. 64. Boston: The Christopher Publishing House, 1931.

Einführung in die medizinische Röntgentechnik. Von Maximilian F. Block. Röntgentechniker in Wien. Mit 107 Abbildungen, davon 19 Röntgenaufnahmen und 19 Tabellen. Wien: Verlag von Wilhelm Maudrich, 1931.

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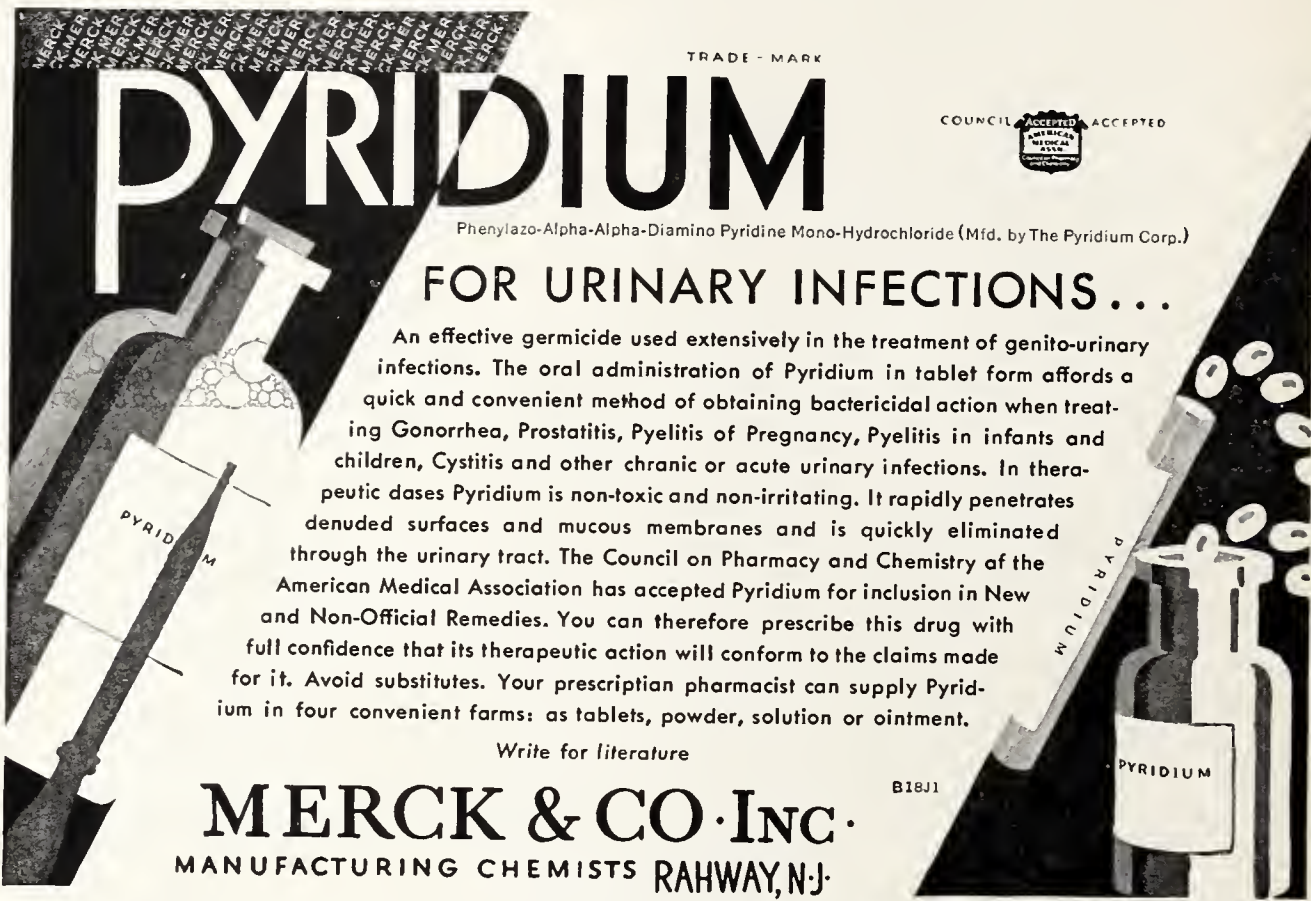
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BOOK REVIEWS

Riders of the Plagues—The Story of the Conquest of Disease. By James A. Tobey. Pp. 348. New York: C. Scribner's Sons, 1930.

Dr. James A. Tobey has produced in attractive form and under a catchy title an excellent one-volume popular history of medicine as it pertains especially to public health and preventive medicine. Without question this book should be on the shelf of every medical student and every physician. It will also find a welcome place on the bookshelf of thoughtful nonmedical persons who wish to orient themselves on general medical progress and particularly on disease control during the centuries.

The style is distinctly for the popular reader, but is none the less interesting for the medical reader. The book itself betrays a very wide acquaintance with the subject-matter on the part of the author and an excellent selection of material. It is most unfortunate that the actual style of writing is extremely careless, inclined to be a little prolix, and the author frequently gives personal or minority opinions with the authority of a representative opinion of the medical profession. For instance, on page 78 he states that sanitarians are agreed that there is no necessity for a national health department in the United States. This is at least a debatable point, and it would be much better if it were presented from that point of view. It is easy to pick out many instances of poor use of words and awkward construction. These should be taken care of in a second edition, and while they do not detract from the general value of the book, they very curiously mar the pleasure of reading it. One might also question the judgment used in presenting the subject of yellow fever. It would seem now that control is more distant than at any time in the past, and the problem more complicated. In its earlier history, also, the author might well have devoted more attention to Le Prince, who did so much of the sanitary clean-up of Cuba and later of the Canal Zone. It is no derogation of the praise due Gorgas to give with equal fairness the praise due to those associated with him, and whose work was much more fundamental. It is, perhaps, necessary in a popular book to idealize the personalities discussed. This, however, must be guarded constantly with the iron hand of reason and of fact.

Altogether, this book can be thoroughly recommended, but if the points noted could be amended the joy of reading it would be greatly enhanced.

A. C. R.

Modern Surgery—General and Operative. By John Chalmers DaCosta. Tenth edition. Pp. 1404. Illustrated. Philadelphia and London: W. B. Saunders Company, 1931. Price, \$10.

This tenth edition of the standard American textbook of surgery has climbed a long ascending path of usefulness since the first compact volume of the 1894 edition. The excellent chapter arrangement of the earlier editions is mainly preserved, the first sixteen chapters being devoted to the discussion of the etiological factors that underlie surgical pathological processes, while the remaining chapters deal with the effect of these factors on the organs or systems, the diagnosis, and treatment of diseases arising therefrom. The individual chapters are surprisingly fresh and up to date in the material presented, though one is struck with the survival of occasional archaic bits of medical lore that lie hidden among the compiled facts of modern surgery. Probably the only occasion the medical student of today is reminded of the ancient pseudonym for the men of our profession is in DaCosta's discussion of leeching in the treatment of inflammation. Again, occasional generalization in surgical therapy appears in print which would win the sanction of few surgeons, such as the statement on page 680 in discussing treatment of concussion and head injuries, one is advised that "In any severe concussion of the brain with contusion of the scalp, the surgeon should at once incise the scalp and inspect the bone."

However, none of the major contributions to surgical knowledge up to and including 1930, has escaped inclusion in this new edition. It has been said that in DaCosta's textbook, one can find everything in the realm of surgical knowledge. This is the delight of the busy practitioner and the despair of the student. There is too much meat for young stomachs, no matter how eager. The illustrations of patients with typical lesions subject to portrayal by camera or sketch are admirable, and the retention of these same illustrations in one's memory have given the key to diagnosis when the condition was encountered for the first time in the living patient. The illustrations of operative procedures, however, are frequently diagrammatic and inadequate, but it is too much to ask that the complete technique of operative surgery be included in a textbook of general surgery. Misprints are rare throughout the book. The index is unusually complete. Lastly, references, especially to American authors, are well chosen and numerous, so that the inquiring student and practitioner may have ease of access to more complete knowledge of the important monographs on surgical disease.

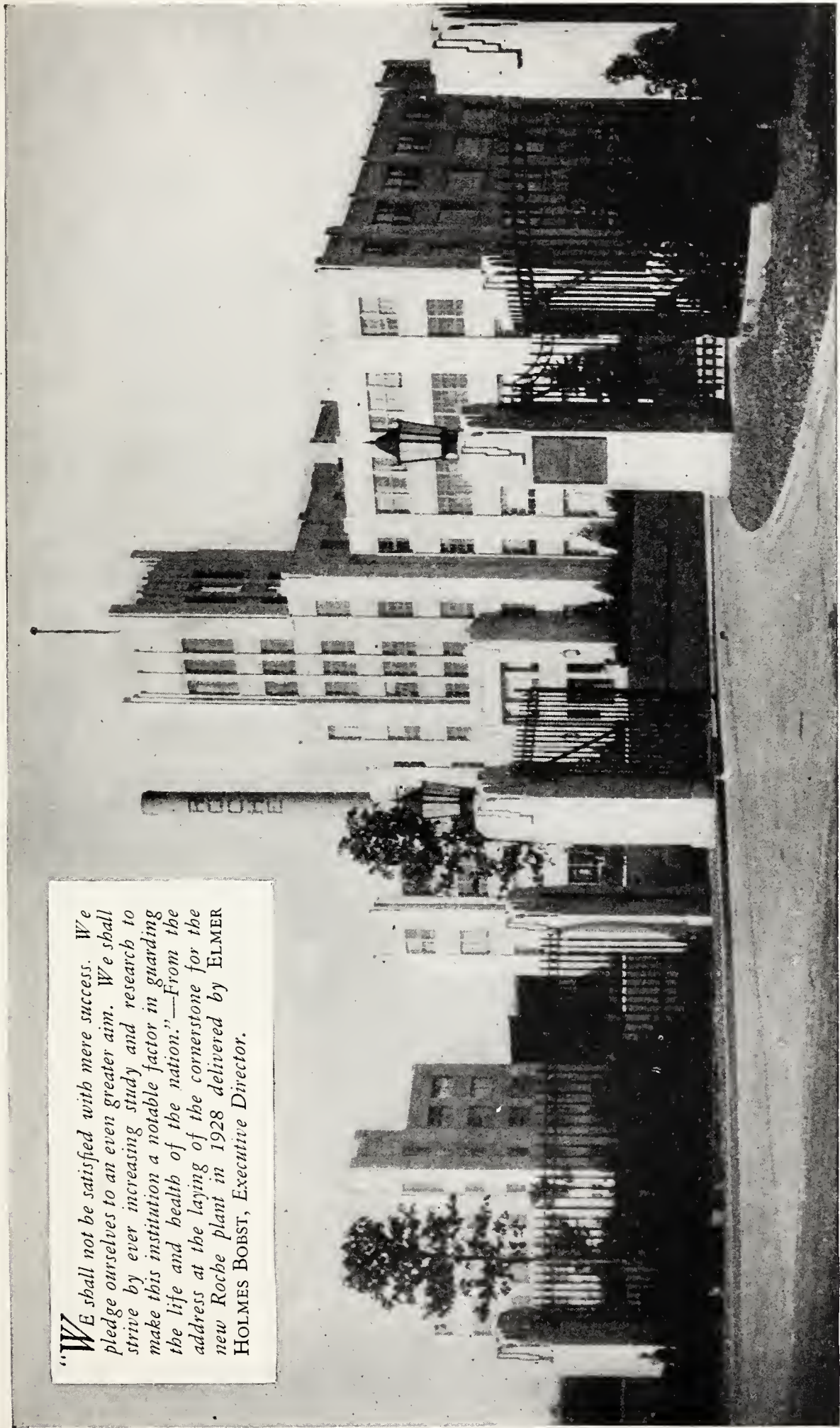
N. H.

(Continued on Page 14)

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BOOK REVIEWS

(Continued from Page 12)

Trauma, Disease, Compensation—A Handbook of Their Medico-Legal Relations. By A. J. Fraser. Philadelphia: F. A. Davis Company. 1930.

This is one of the most comprehensive and complete works on this subject. Almost every compensable injury or disease is reviewed and its legal status discussed. Usually cases in point are quoted with the decisions of the various industrial boards. While most of these decisions are from Canadian Commissions, still the principles involved apply equally well to those of our own commissions. This book should be an excellent guide to all surgeons doing industrial work.

Two criticisms, however, suggest themselves: first, the author's apparent pessimistic attitude as to prognosis of many injuries and diseases and, secondly, the tendency to accept claimed disabilities as compensable because of lack of proof to the contrary. My experience leads me to believe that few disabilities are underrated and that examination a few years later only too frequently shows that conditions rated as permanent have improved or returned to normal.

Any treatise of this extent seems incomplete without more attention to the differential diagnosis between traumatic and nontraumatic lesions, especially as the remuneration of the physician usually goes hand in hand with the successful effort of the injured to establish his claim. Too frequently claims are allowed as industrial because the surgeon fails to look for, or he is unfamiliar with diseases which would simulate a compensable injury. Inasmuch as most alleged injuries are accepted as compensable unless proven otherwise, the experience of those surgeons most familiar with this specialty should be available to physicians less familiar with industrial accidents and diseases that the employed may be as justly treated as the employee.

C. L. H.

Calcium Metabolism and Calcium Therapy. By Abraham Cantarow with a foreword by Hobart Armory Hare. Pp. 215. Philadelphia: Lea & Febiger. 1931. Price, \$2.50.

This little book is an excellent summary of the work that has been done on calcium in its relation to normal and pathological metabolism and the indications and contraindications for its administration in various diseases. It is a very fine handbook to have in a library for handy reference.

H. E. T.

(Continued on Page 17)

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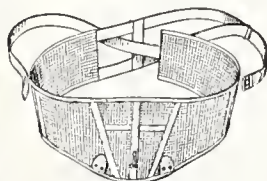


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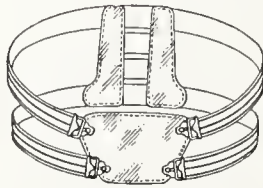
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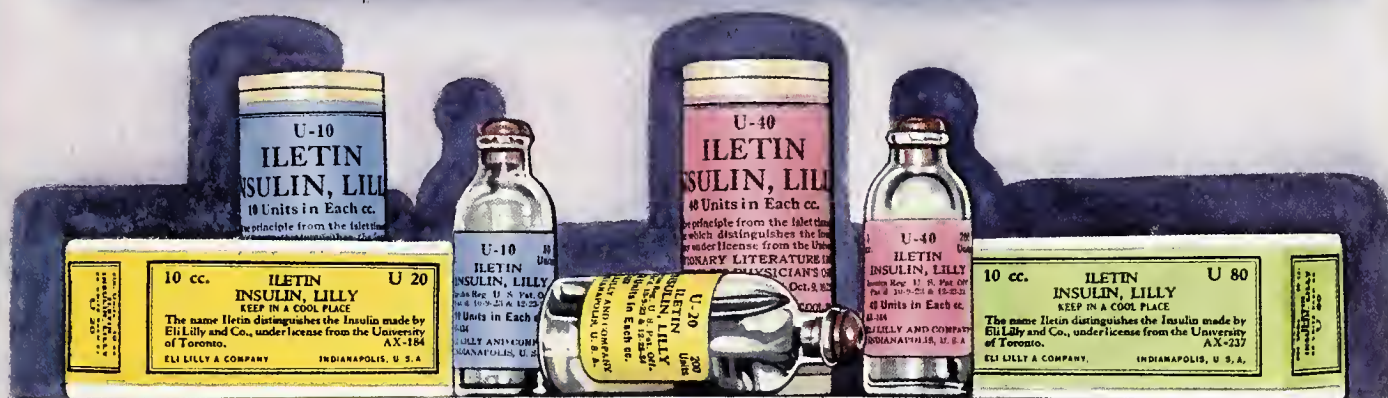
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BOOK REVIEWS

(Continued from Page 14)

Abdomino-Pelvic Diagnosis in Women. By Arthur John Walscheid. Pp. 1000. Illustrated. St. Louis: The C. V. Mosby Company. 1931. Price, \$12.50.

An unusual book on the subject of gynecology. It is a treatise on diagnosis; treatment is omitted. It is not a book for the medical student, but for those with practical experience who can visualize what they are reading.

The author states that "this is not a picture book," yet it has 397 illustrations. The entire text, with index, covers one thousand pages.

There are two parts, general and special gynecology. The first deals with an introduction which takes up anatomic, anthropologic, postural and general morphologic features; etiological factors; general symptomatology; and gynecologic examination and diagnosis. The second part deals with disease of the special organs of generation; of the pelvis; of the urinary tract; and of the abdominal wall and viscera (i. e., peritoneum, omentum, and appendix). There is also a chapter on diseases of the anus and rectum.

In the preface the author says: "I beseech the reader to peruse the text very cautiously and repeatedly, for it is believed that he will then be able to visualize the particular disease or symptom in a satisfactory manner." This seems to be good advice, for a cursory perusal of the book will not give one much. It demands study. It is the type of book, which, carefully studied, will give help on the diagnosis of any gynecological condition. It is well written, and to one who has had sufficient experience it is very interesting. It should be in the library of every gynecologist.

K. L. S.

Textbook of Physical Therapy. By William Benham Snow. Pp. 708. Illustrated. New York: Scientific Authors' Publishing Company. 1931. Price, \$10.

Some of the technical directions in this bulky book will probably be useful, however, the explanations for results claimed by the author are little founded on critical sense. (1) Page 222, in discussing a case of tabes dorsalis treated by static electricity: "This was followed by the application of the wave current over the epigastrium and liver, thereby restoring its function of destroying toxicity." (2) "Our extensive experiments with galvanism have shown that it improves the nutrition of the coats of the blood vessels. . . ."

Numerous similar statements encountered in a cursory examination of this volume will incline one to doubt its reliability.

L. E.

Health for Travelers, Hygiene and Health Preservation in the Tropics, Orient, and Abroad. By the staff of the Pacific Institute of Tropical Medicine, within the George Williams Hooper Foundation for Medical Research of the University of California. Edited by Alfred C. Reed. San Francisco: J. W. Stacy Company. 1931.

We, who have lived a large part of our lives in the tropics, are so conversant with the tropical mode of life that rules of conduct, prophylaxis, and medical care have become routine with us.

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It is a splendid little work, well gotten up, and its true worth will only be appreciated by one who has lived in the tropics and tried to impart succinctly tropical health knowledge in a simple manner, understandable by the layman as well as the doctor.

B. C. N. O'R.

Protozoan Parasitism of the Alimentary Tract, Pathology, Diagnosis, and Treatment. By Kenneth M. Lynch. Pp. 258. Illustrated. New York: The Macmillan Company. 1930. Price, \$3.75.

The author has written a clear, concise and accurate account of the intestinal protozoa commonly encountered in the examination of specimens in the medical laboratory.

In this, as in other branches of protozoölogy, accumulated information is assuming extensive proportions. Not all of this, however, is of equal importance to the medical diagnostician or practitioner, and the writer has shown wise judgment and discernment in the selection of the material included in the book.

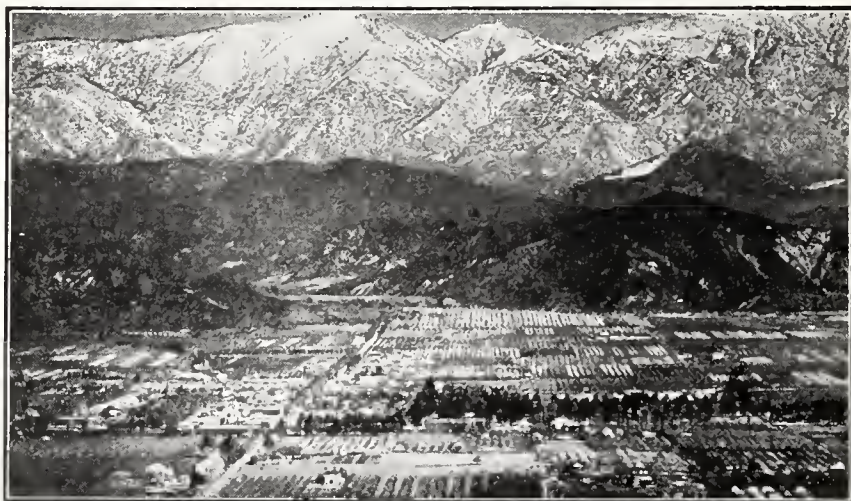
The type, paper, and arrangement of the book are good. Illustrations, which are sufficient in number and well executed, are arranged in such relation to descriptive text as to materially add to the worth of the book.

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BOOK REVIEWS

(Continued from preceding page)

As a text for the student seeking an introductory understanding of the subject, and as a ready reference for those engaged in practical examination of specimens, this book should prove especially valuable.

H. A. W.

Obstetrics for Nurses. By Charles B. Reed and Charlotte L. Gregory. Third edition. Pp. 399. Illustrated. St. Louis: The C. V. Mosby Company. 1930.

The third edition of this textbook for nurses has added the name of Charlotte L. Gregory, otherwise there is very little change noted from the second edition.

The book is well done. All obstetrical subjects are covered in a clear and brief manner. There are 337 illustrations, which are a great help to the student in understanding the text. Chapter XXXV deals with solutions and has a therapeutic index of practically all the drugs used in obstetrics. There is a glossary of obstetrical terms which should be a great help to students.

This is a very satisfactory textbook for student nurses and gives more in its 399 pages than most.

K. L. S.

Traumatotherapy—The Treatment of the Injured. By John J. Moorhead. Pp. 574. Illustrated. Philadelphia and London: W. B. Saunders Company. 1931. Price, \$7.00.

The book is a discourse on the step-by-step treatment of the various traumas.

The emergency treatment of contusions, wounds, burns, dislocations, and fractures, especially the chapter on the standardized procedures in first-aid treatment, is accurately described. The management of such cases is outlined in considerable detail.

The author also gives a valuable chapter on the medico-legal aspects of injuries.

L. R. C.

Minor Surgery and Bandaging for the Use of House Surgeons, Dressers, and Junior Practitioners. By Gwynne Williams. Twentieth edition. Philadelphia: F. A. Davis Company. 1930.

This excellently written textbook might well have been entitled "A Handbook of Minor Surgical Therapy." The subject-matter handles with accuracy and brevity practically all of the problems which confront the surgical house officer. The volume is profusely illustrated with excellent black and whites.

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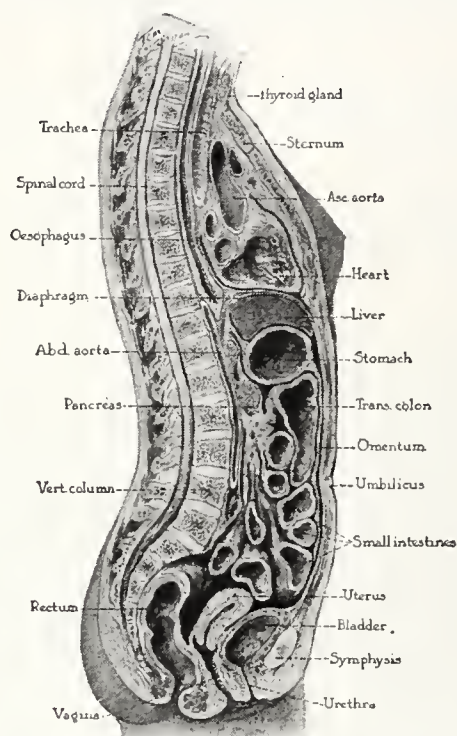
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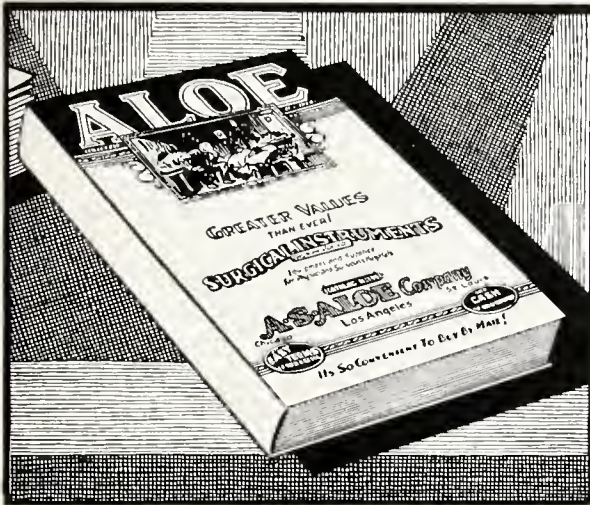
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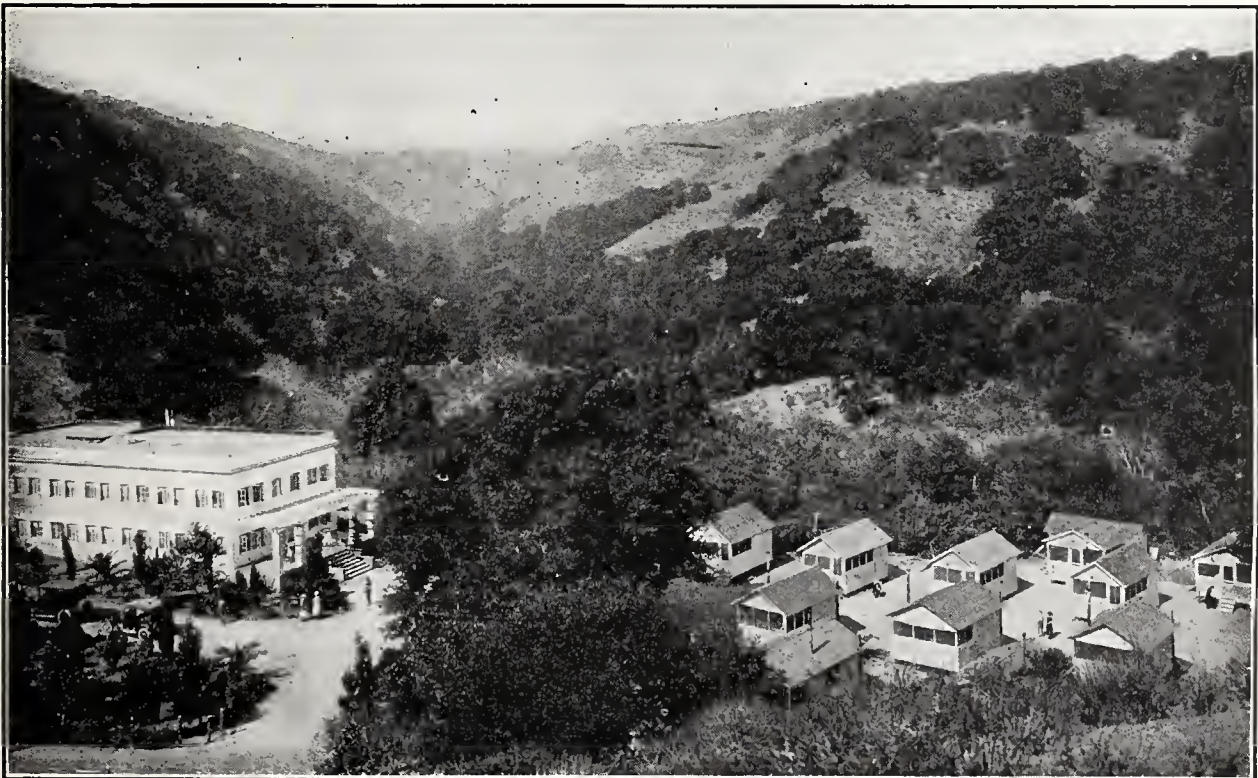


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Charles Pfizer & Co.—Calcium Gluconate (Pfizer).

Spicer & Co.—Quiniobine; Quiniobine Ampoules, two cubic centimeters.

E. R. Squibb & Sons.—Grasses Combined Pollen Allergen Solution (Squibb); Cotton Pollen Allergen Solution (Squibb).

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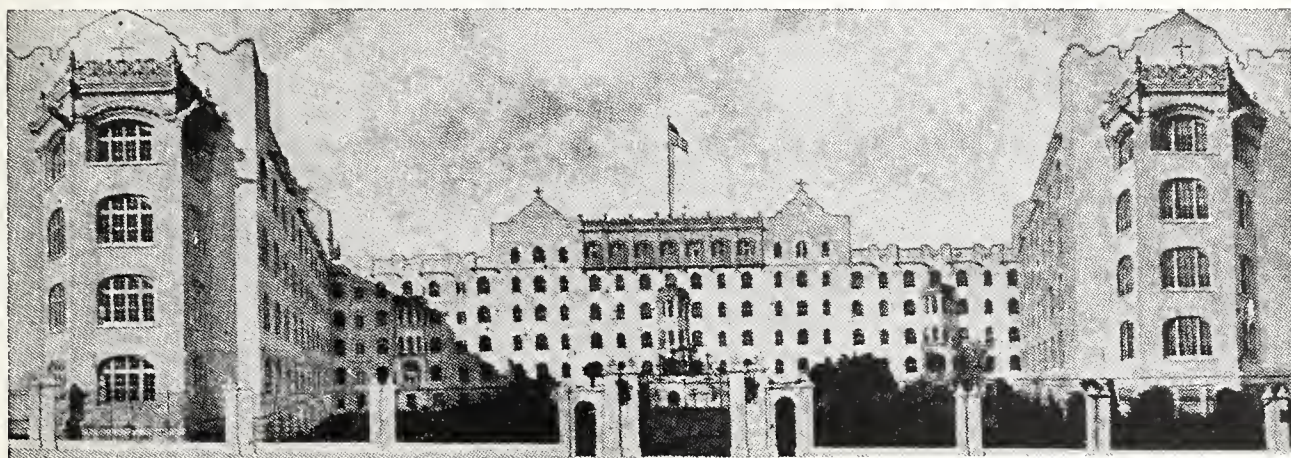
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TRUTH ABOUT MEDICINES

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plex in the diet. It is also proposed as a means of stimulating the appetite and growth and for a beneficial effect in lactation. Mead Johnson & Co., Evansville, Ind.—*Journal of the American Medical Association*, May 2, 1931, p. 1477.

Diphtheria Toxoid.—A diphtheria toxoid (New and nonofficial Remedies, 1930, p. 364) prepared from diphtheria toxin by treatment with formaldehyd. It is marketed in packages of one immunization treatment and in packages of fifteen immunization treatments. Eli Lilly & Co., Indianapolis.

Ampoules Solution of Nupercain (Ciba), Twenty-Five Cubic Centimeters.—A 1:1000 solution of nupercain (Ciba) *Journal of the American Medical Association*, March 21, 1931, p. 946). Ciba Co., Inc., New York.

Schiffelin Psyllium Seed.—A brand of psyllium seed—N. N. R. (New and Nonofficial Remedies, 1930, p. 311). Schiffelin & Co., New York.—*Journal of the American Medical Association*, May 16, 1931, p. 1694.

Diphtheria Toxin for Schick Test in Peptone Solution.—A diphtheria toxin (New and Nonofficial Remedies, 1930, p. 380) made by growing diphtheria bacilli in broth, ageing and diluting with peptone solution, according to W. E. Bunney. The product is ready for use. It is marketed in packages of one syringe containing diluted diphtheria toxin sufficient for one test and in packages of one vial containing sufficient for ten tests. As a means of control, diphtheria toxin, heated to 75 centigrade and diluted with peptone solution, is supplied. Lederle Laboratories, Inc., Pearl River, New York.

Pollen Allergen Solutions (Squibb).—The following pollen allergen solutions (Squibb) (New and Nonofficial Remedies, 1930, p. 27, *Journal of the American*

Medical Association, December 20, 1930, p. 1913), marketed in five cubic centimeter vials, has been accepted: Cottonwood Pollen Allergen Solutions (Squibb). The following pollen allergen solutions (Squibb) (New and Nonofficial Remedies, 1930, p. 27; *Journal of the American Medical Association*, December 20, 1930, p. 1913), marketed in five cubic centimeter vials, in treatment set packages A, B, C, and D, and in three vial treatment packages, has been accepted: Grasses Combined Pollen Allergen Solutions (Squibb) (Bermuda Grass, June Grass, Orchard Grass, Red Top, and Timothy, in equal parts). E. R. Squibb & Sons, New York.—*Journal of the American Medical Association*, May 30, 1931, p. 1872.

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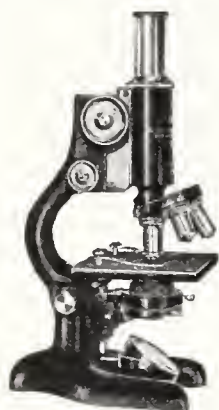
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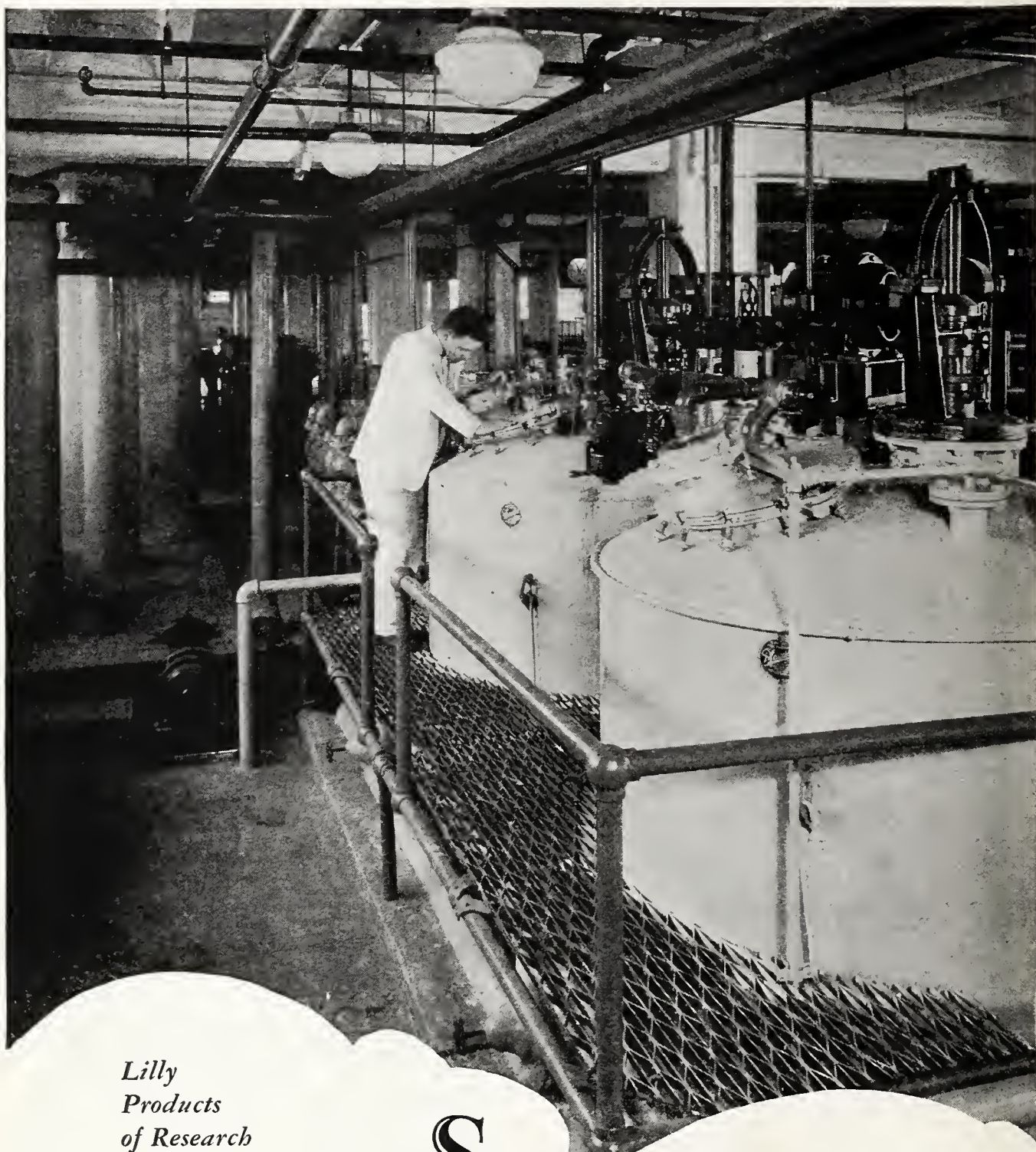
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VOLUME XXXV

JULY, 1931

No. 1

DISEASES OF THE BILIARY TRACT— CLINICAL AND SURGICAL ASPECTS*

REPORT OF CASE

By CLAUDE F. DIXON, M. D.
Rochester, Minnesota

IN Hippocrates' writings no mention is made of gall-stones. Galen once observed a large stone which had been passed by rectum. He apparently did not suspect that it came from the biliary tract.

COMMENTS ON LITERATURE

Gentile de Foligno, in 1348, was the first to observe gall-stones. Fernel, in 1554, suggested that gall-stones were the product of thickened bile and that their formation was more likely if one of the biliary ducts became occluded. Johann Fabricus, in 1618, removed a stone from the gall-bladder of a human being. The operation probably was performed on the cadaver.

The seventeenth century marks the beginning of experimental surgery on the gall-bladder. Zambecari was the first to remove the gall-bladder; he carried out the experiment on a dog. The animal recovered. Michael Entmuller, in 1667, concluded, from experiments by others, that removal of the gall-bladder had no effect on the biliary passages. It was Jean Louis Petit who, in 1743, first operated for the removal of gall-stones. He was of the opinion that before the gall-bladder could be operated on adhesions must first fix the organ to the abdominal wall. Then, by puncturing the gall-bladder through these adhesions, he thought stones could be removed by long forceps. Surgeons of this period were so convinced of the importance of adhesions between the gall-bladder and abdominal wall that substances such as onions and horseradish were applied to the abdomen to bring about this fixation. Later surgeons opened the abdomen and spread these various substances over the parietal peritoneum in order to wall off the gall-bladder. Later others such as Thudicum, in 1859, thought drainage of the gall-bladder should be done in stages; the gall-bladder should first be sutured to the abdominal wall, and it should be opened later.

Bobbs, in 1867, an American surgeon, made the first cholecystostomy. He was of the opinion that he was operating on an ovarian cyst. Marion Sims, in 1878, drained the gall-bladder of a patient who was suffering from dropsy. Death oc-

curred nine days later. In the same year Kocher, Tait, and Keen did this operation with gratifying results. Langenbuch is credited with having done the first cholecystectomy June 15, 1882. The patient's convalescence was without incident. This surgical feat was followed in France by Courvoisier and in America by Ohage in 1887.

Lawson Tait of England was much against removal of the gall-bladder, and apparently for this reason cholecystectomy was not done in that country for several years. Operations on the biliary ducts were first carried out by von Winwarter, Seyffert, Kümmel, Thornton, Haasler, Kocher, McBurney, and Reidel.

PATHOLOGY

The increase in operations on the gall-bladder has been responsible, naturally, for a large number of injuries to the common bile duct. Most of these accidents have occurred because of technical difficulties encountered at the time of operation. Reconstruction of the common duct has been necessary in many instances in which it has been injured. Pioneers in this type of surgery are Jacobson, W. J. Mayo, Moynihan, and others.

It was once common opinion that if stones could be successfully removed from the gall-bladder, recovery from the symptoms of disease of the gall-bladder inevitably followed. Because of recurrence of symptoms in many of these cases, with or without the formation of additional stones, the gall-bladder itself has received more consideration and the stones less consideration as the probable etiologic factor in the production of that group of symptoms which is believed usually to characterize cholecystitis or cholecystic disease.

Changes in the liver and biliary ducts, associated with certain types of chronic disease of the gall-bladder, have for some time attracted the attention of the surgeon and the pathologist. Some of these changes (hepatitis, cirrhosis) have been so marked as to suggest impairment of certain functions thought normally to be carried on by the liver. These pathologic modifications, then, associated with biliary disease, have stimulated a vast amount of experimental physiologic investigation, not only with regard to the normal function of the liver, but also with regard to the results obtained following experimentally produced lesions that are similar to those frequently seen in certain advanced cases of cholecystitis.

Infection seems to have been considered the greatest single cause of disease of the biliary tracts. Yet, in some instances, it seems fundamentally sound to attribute the etiology to some

* From the division of surgery of the Mayo Clinic, Rochester, Minnesota.

* Read before the Nevada State Medical Association at Reno, September 26-27, 1930.

metabolic disturbance. When infection was suggested as the cause of disease of the gall-bladder some discouraging attempts were made to isolate the offending organism. These studies were carried out on cultures made from the bile of grossly diseased gall-bladders. Rosenow, Wilkie, and others, made bacteriologic studies on the wall of the gall-bladder instead of on the bile, and obtained positive cultures in a high percentage of apparently diseased gall-bladders. Wilkie and his coworkers made cultures of gall-bladders removed from patients with clinical histories of cholecystic disease of long standing. Results were positive in 82 per cent of cases. The streptococcus was the predominating organism. In a later, similar group, Wilkie's results were not so encouraging. Concerning those who have been unable to duplicate, to any appreciable extent, Rosenow's and Wilkie's studies, the latter has suggested that the discrepancy was probably due to technical error. He has said that if the mucous membrane is included, when the wall of the gall-bladder is cultured, the small amount of bile adhering to the mucous membrane might be the cause of the negative results. The organisms which have been demonstrated in diseased gall-bladders have been found in the submucous layer and not in the bile or in the mucosa. With regard to infection as the sole cause of cholecystitis, then it may be said that bacteria, or evidence of the presence of bacteria, have not been demonstrated in all cases studied.

TYPES OF CHOLECYSTIC DISEASE

The fact that identical histories characteristic of disease of the gall-bladder can be obtained from patients whose gall-bladders on removal present entirely different pictures, has led to the attempt to classify disease of the gall-bladder. This attempt has not been successful in all respects. For example, the impression may have been gained, from one patient's history, that the gall-bladder contains stones; at operation stones may not be found, and vice versa. Therefore, from clinical or roentgenologic studies, it is not possible to determine definitely in all cases what type of gall-bladder will be found at operation, although in all cases the characteristic subjective and objective features may be the same.

Aschoff many years ago reported peculiar, yellowish, pin-point stippling observed in the mucosa of the gall-bladder in certain cases of clinical cholecystic disease. MacCarty, in 1910, again called attention to such gall-bladders, which W. J. Mayo and Moynihan later described, and which is known now as "strawberry gall-bladder."

Boyd found that this strawberry appearance of the mucous membrane in certain gall-bladders that previously had been described was due to a lipoidal substance, an ester of cholesterol, which filled the cells of the submucosa, protruded into the cells of the mucous membrane of the villi and caused the characteristic strawberry appearance. Mentzer gave the name "cholesterosis" to this condition. One of the reasons suggested for the occurrence of this interesting phenomenon is that the paths of absorption in the submucous

layers of the gall-bladder may be blocked, thereby allowing a collection of cholesterol to accumulate in the mucous membrane and that occasionally these fine granules of cholesterol may be shed, forming the nuclei of stones. Occasionally a single cholesterol stone may be found in an otherwise normally functioning gall-bladder, and symptoms of its presence may not occur unless it obstructs the cystic duct. This type of stone is thought to be of metabolic origin, and probably is produced at some such time as the concentration of blood cholesterol is considerably higher than normal. Of one thousand cases of this type, studied by Mentzer and Judd, 60 to 70 per cent of the women dated their first attack at a time during their first pregnancy.

Dewey found, in hypercholesterolized animals, that the lymphatic structures of the gall-bladder were filled with cholesterol. Gosset, Bertrand, and Loewy confirmed this observation. They were of the opinion that the presence of cholesterol in the mucosa, producing the so-called strawberry gall-bladder, was an aseptic process, occurring during a time of hypercholesterolemia, and that infection came secondarily, setting free the cholesterol and causing formation of stones. In half of the one thousand cases of cholesterosis studied by Mentzer and Judd, the gall-bladders contained stones. These authors also observed that in the cases in which stones were present the history was of much longer duration than in those in which stones were absent. It has been suggested that formation of stone in the gall-bladder, which is the site of cholesterosis, may be brought about by the shedding of these bits of cholesterol, forming the nucleus of the stone. It has been observed that if a pure cholesterol stone is dissolved, the nucleus is of an albuminous nature, suggesting the characteristics of a polyp.

Removal of a strawberry gall-bladder, even in the absence of stones, almost invariably gives complete relief, provided the symptoms before operation were those characteristic of cholecystic disease. Not only may negative cultures of the bile and of the wall of the gall-bladder be obtained in this type of disturbance of the gall-bladder, but frequently there is no evidence of infection, such as infiltration of the lymphatic apparatus. In a true sense it would seem that this type of cholecystic disease is of metabolic origin.

In those cases of cholesterosis in which positive cultures of the wall of the gall-bladder, and microscopic evidence of infection can be demonstrated, infection is evidently a secondary factor. Roentgenologic examination of a gall-bladder in which cholesterosis is present is usually negative, regardless of the symptoms, unless sufficient scar tissue is present to prevent absorption of the dye; in that case a positive roentgenologic examination or the presence of a nonfunctioning gall-bladder is reported.

Another type of disturbance of the gall-bladder is clinical cholecystic disease, a term suggested by Judd and McIndoe. Comprising this group are the patients whose histories are typical of disease of the gall-bladder. However, the removed gall-bladder does not contain stones and does not

show evidence, grossly or microscopically, of either an infectious or a metabolic process. The most interesting feature of these cases is that in practically all of them in which pain was the predominating symptom, relief has been obtained by cholecystectomy. Neurosis must be carefully distinguished from this condition. The reason for the symptoms in clinical cholecystic disease is not known. That the sphincter of Oddi loses its power of contraction to a considerable extent following removal of the gall-bladder, allowing a continuous flow of bile into the duodenum, has been demonstrated. It is possible that this phenomenon explains why relief by cholecystectomy is brought about in this type of disturbance of the gall-bladder.

The diffusely infected gall-bladder, with thick, leathery, grayish-white walls, containing many stones, usually is the picture one has in mind when considering cholecystic disease. This process may begin as an inflammatory condition in the wall of the viscus, in the manner in which acute enteritis occurs in typhoid fever. In the acute stage, symptoms of cholecystitis may be present, the process may become chronic and stones may be formed. Another most feasible explanation for this type of cholecystitis is secondary infection superimposed on either of the other two groups just mentioned. It is from this diffusely diseased type of gall-bladder that it is possible to get positive bacterial cultures. The types of stones in this group may be cholesterol and calcium-bilirubin stone, particularly if infection is superimposed on the cholesterosis type of gall-bladder.

In the beginning I mentioned the importance of considering the liver and biliary ducts in connection with cholecystic disease. In removing the gall-bladder a careful examination of the common bile duct is all-important, particularly if the duct is enlarged. The experience of having a patient return several months after cholecystectomy, with the same complaint, and perhaps in addition with jaundice, at once arouses the suspicion that a stone in the common bile duct was overlooked at the time of the first operation. Further surgical interference is, of course, obviously indicated in this type of case. Judd has reported fifty-two cases in this group in which secondary operation revealed a large common bile duct but did not reveal stones. Prolonged external, intermittent drainage, by means of a T tube, effected relief in practically all of the cases; the condition evidently was one of diffuse cholangitis.

THE HEPATITIS OF CHRONIC GALL-BLADDER DISEASE

Now that I have dealt briefly with certain types of cholecystic disease, with particular reference to the changes found in the gall-bladder, I wish to direct attention to the hepatitis or cirrhosis frequently seen associated with chronic disease of the gall-bladder. Definite, well-defined, and advanced cirrhosis may be present, or there may be mild cirrhosis or hepatitis. Surgical procedures, especially those done on the biliary system in the

presence of marked hepatic injury and insufficiency, are carried out with considerable risk.

The studies of Mann and his coworkers on the physiology of the liver, and on the functions of the impaired liver, seem to have some clinical application with reference to hepatic injury resulting from cholecystic disease. It has been demonstrated in the experimental animal that certain changes occur following removal of the normal liver. These changes are as follows: There is marked decrease in the concentration of blood sugar and cessation of formation of urea. Also there accumulates in the tissues of the hepatectomized animal a yellowish pigment which gives a positive reaction for bilirubin. One may say, then, that certain functions of the liver are fairly well defined; the liver has to do with the formation of urea; it is a storehouse for carbohydrates, it maintains a fairly constant level of blood sugar, and it acts as an organ for excretion of bile pigment.

In the experimental animal, very marked cirrhosis can be produced by the frequent administration of carbon tetrachlorid, which has a definitely toxic effect on the liver. If administration of this substance is stopped, rapid regeneration of hepatic substance takes place. Since this result is obtained experimentally by a toxic agent, and since the appearance of the liver compares in every way with that of cirrhosis seen in infection of the biliary tract, as has been mentioned, it seems fair to assume that with infection in the gall-bladder, and particularly in a case with stones in the common bile duct, a definite and constant toxic effect is exerted on the liver. If an animal in which cirrhosis of the liver has been produced by the injection of carbon tetrachlorid is fed the usual diet, consisting largely of proteins, death inevitably occurs in a few days. On the contrary, if a diet of carbohydrate is given, life of the animal is prolonged almost indefinitely. In other words, the injured liver does not tolerate proteins. In an attempt to estimate the value of these experimental results and to determine whether or not they have clinical application, cases of advanced cirrhosis, associated with biliary disease, have been treated preoperatively and postoperatively by means of a diet high in carbohydrate, with very gratifying results, as in the following case:

REPORT OF CASE

A woman, aged fifty-seven years, came to The Mayo Clinic August 28, 1928, complaining of severe attacks of pain in the upper right abdominal quadrant, characteristic of cholecystic disease and of thirty years' duration. Morphine had been necessary for relief. In the ten years previous to her admission at the clinic the attacks had become more frequent and of increased severity. She had been deeply jaundiced for three weeks. There was marked pruritus; the stools had been clay-colored for five weeks. There was a loss of eight pounds in weight. The patient was emaciated. The spleen could be felt about seven centimeters below the costal margin. The edge of the liver scarcely could be felt. There was moderate edema of the ankles. The systolic blood pressure was 170 and the diastolic, 100 millimeters of mercury. The pulse rate each minute was 88 and the temperature 97.6 degrees Fahrenheit. There was a distinct trace of albumin in the urine, and tests for bile were

strongly positive. The Wassermann reaction of the blood was negative. The concentration of blood urea was 64 milligrams in each 100 cubic centimeters. The coagulation time was ten minutes and the calcium time, six minutes. On test of hepatic function, retention of dye was graded three plus. The diagnosis was of chronic disease of the gall-bladder with stones in the common bile duct.

The patient was hospitalized for preoperative treatment. This consisted of a diet high in carbohydrate; 1000 cubic centimeters of a solution which contained ten per cent glucose and one per cent sodium chlorid was given intravenously, daily, and five cubic centimeters of a solution of calcium chlorid ten per cent were given in the vein every other day for six days, that is, three doses in all. At operation the liver was found to be small and high-grade cirrhosis was present. The gall-bladder was conspicuous by being only about 2 by 1.5 centimeters. The common bile duct was enormous and contained many huge stones. After removal of the stones a large T-tube was inserted in the common bile duct for the purpose of external drainage.

The postoperative treatment was similar to that given preoperatively in that large amounts of carbohydrate were given in the form of glucose intravenously, and corn syrup, milk, fruit juices, toast, and so forth, by mouth. The patient's convalescence was uneventful. The jaundice subsided in two weeks. The T-tube was removed on the twenty-first day after operation. The patient was seen two years after operation. She had gained thirty pounds, was of excellent color, and entirely free from symptoms. A test of hepatic function at that time showed only slight retention of dye. The concentration of blood urea was normal.

Comment.—This case is one of many in which this type of treatment has been given. The results are, to say the least, encouraging, and I think they warrant the clinical application of the information that has been obtained as a result of the animal experimental work done as a part of studies on the liver. If three-fourths of a dog's liver is removed, restoration takes place, so that the organ is of normal size in from three to five weeks. The restoration of the liver in the case which I have just cited is evidenced, I think, by the return of hepatic function approximately to normal in a period of less than two years.

CLASSIFICATION OF DISEASES OF THE GALL-BLADDER

The classification of diseases of the gall-bladder which has been used for the last few years is as follows: (1) Acute cholecystitis; (2) chronic cholecystitis, with or without stones; and (3) cholesterosis with or without stones.

Because of the fact that some types of disease of the gall-bladder seem to be of metabolic origin, Judd and McIndoe have suggested the following classification: (1) Acute cholecystitis; (2) metabolic cholecystic disease, with or without stones; and (3) clinical or functional cholecystitis disease.

Acute cholecystitis may have as its cause the organism of typhoid fever. It may occur with, or a number of years following, an attack of typhoid fever. Acute clinical cholecystitis can be produced in the experimental animal by intravenous injection of small amounts of Dakin's solution. The lesion produced in this manner compares favorably with that occasionally found in the clinically diseased gall-bladder. Actually, whether

or not clinical cholecystitis occurs in the human being, we do not know. In acute, nonspecific cholecystitis the organisms which are found with great frequency are *Escherichia coli* and *Clostridium welchii*. The condition is usually accompanied by obstruction, which is caused by the impaction of one or more stones in the cystic duct.

In chronic cholecystic disease, bacteria are causal and stones may or may not be present. The condition may be the result of acute cholecystitis or it may come on insidiously. It is from the wall of the gall-bladder in this type of case that Rosenow and Wilkie have isolated the streptococcus.

In metabolic cholecystic disease with or without stones the condition to be met is primarily the so-called strawberry gall-bladder, or cholesterosis. Mentzer, in studying one thousand cases of this type, found that stones were present in 50 per cent. A history of typhoid fever was present in less than 10 per cent of these cases. Cholecystic disease, which frequently occurs during pregnancy, is found to be of this type. It is known that the concentration of blood cholesterol is definitely increased at the time of pregnancy and it seems logical to assume that, at least in certain instances, cholesterosis, or strawberry gall-bladder, is the result. When a single stone is found in this type of gall-bladder it is usually of pure cholesterol. The gall-bladder may be functioning normally, and there may be no symptoms of disease unless the stone obstructs the cystic duct. Infection may invade the strawberry gall-bladder, producing chronic bacterial cholecystic disease with stones, as acute cholecystitis.

Clinical or functional cholecystic disease makes up the third group, which is perhaps the most interesting. Although the symptoms of cholecystitis may be typical, there is little, if any, evidence of disease to be found grossly or microscopically. Yet if the history is typical, relief by removal of the gall-bladder is obtained in a high percentage of cases. Cholecystography has been a great aid in the diagnosis of disease of the gall-bladder. It is a functional test and should be used only to corroborate the clinical observations. If the power of absorption of the gall-bladder has not been interfered with, it can be clearly visualized. Occasionally the roentgenologic report is of a normally functioning gall-bladder, with stones. In all probability, most gall-bladders which contain multiple stones are definitely diseased; their visualization is brought about not because of their ability to absorb the dye, but because of the calcium oxalate in the wall of the gall-bladder. In other words, if a roentgenogram were made without the administration of dye, visualization would be the same. Of the symptoms of disease of the gall-bladder the most characteristic is pain. If this is present, regardless of the type of gall-bladder, cholecystectomy gives permanent relief in a vast majority of cases.

Cholangitis may produce the symptoms of stones in the common bile duct. Treatment by external biliary drainage, using a T-tube, brings relief in the majority of cases.

Experimental physiologic investigation seems to have definite clinical application in that the preoperative and postoperative treatment in cases of hepatic cirrhosis complicating disease of the gall-bladder is best treated by feedings high in carbohydrate and low in protein.

The Mayo Clinic.

RESPIRATORY FAILURE IN POLIOMYELITIS— ITS TREATMENT WITH THE DRINKER RESPIRATOR*

REPORT OF CASES

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DRINKER¹ first described the construction and operation of his mechanical respirator in May 1929, and since that time there have been reported in the literature five cases^{2,3,4} of respiratory failure due to poliomyelitis treated in the respirator. Several other cases were mentioned but not reported in detail. A Drinker respirator was installed in the Communicable Disease Department of the Children's Hospital, San Francisco, in August 1930, and a second machine the latter part of October 1930. Since the installation of the first respirator fifteen patients with varying degrees of respiratory involvement due to poliomyelitis have been treated in these machines. Most of these were in urgent need of artificial respiration and could not have survived long without some form of assistance. A few patients were in less desperate condition, but treatment in the respirator was used to relieve them of fatigue and anxiety, to secure rest for the involved muscles of respiration and, as they improved, to increase chest expansion.

Nine of our patients had respiratory difficulty due to intercostal weakness or paralysis; three of these patients died. One patient had chiefly diaphragmatic involvement and is apparently recovering. Five of the patients showed bulbar involvement and none of these survived.

The type of respiratory failure most favorable for treatment in the respirator is that due to intercostal paralysis. These patients, if left alone, may die early of asphyxia or later of pneumonia secondary to atelectasis. The diagnosis of intercostal paralysis is not difficult. In our series intercostal paralysis was constantly associated with paralysis of the muscles of the shoulder girdle on one or both sides, and frequently disappearance of the upper abdominal reflexes was noted just before intercostal weakness was first apparent.

These patients show moderate increase in respiratory rate and the respirations are shallow, frequently asymmetrical and effected chiefly by the diaphragm. As the condition progresses, paradoxical respiration is noted in which the upper chest collapses synchronously with inspiratory effort of the diaphragm and rises during the act of expiration. This is, of course, due to failure of the upper intercostals to help in respiration and to their inability to maintain expansion of the upper chest cage against pull of the diaphragm. As a result there is very poor pulmonary ventilation, necessitating constantly increasing effort on the part of the diaphragm which leads to progressive fatigue of the diaphragm and finally respiration ceases. Sometimes the onset of diaphragmatic exhaustion is extremely abrupt.

The response of these patients to the respirator was very gratifying. Usually before their condition became alarming they were told that if they became too fatigued they could have the help of the respirator, and in several instances patients asked to be placed in the machine for a trial. A few of the children were very apprehensive and had to be given opiates over a short period when first placed in the respirator. None of these patients had any difficulty in adapting themselves to the rhythm of the machine. Brief case histories follow.

REPORT OF CASES

CASE 1.—A male adult of thirty-one years was transferred to the Children's Hospital from the San Francisco Isolation Hospital on August 17, 1930, the sixth day of his illness. He had at that time, in addition to complete intercostal paralysis, almost complete paralysis of both lower extremities and of the right shoulder, marked weakness of the abdominal muscles and urinary retention. He was extremely apprehensive and his condition appeared desperate. His breathing was entirely diaphragmatic, there were fibrillary tremors of the neck muscles, there was moderate cyanosis and the pulse was weak and irregular. The respirator immediately relieved the patient's distress, and the improvement in his condition was striking. He was kept in the machine almost continuously for one week, then was kept out for increasingly longer periods until the sixteenth day after entry, when he was able to remain out.

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CASE 2.—A woman of thirty-five years, who entered with complete flaccid paralysis of both upper and lower extremities and left facial weakness, developed some evidence of intercostal weakness on August 16, 1930, but without cyanosis or any change in the pulse. On August 20, 1930, about midnight her respiration failed quite suddenly, apparently due to exhaustion of the diaphragm. She was comatose and extremely cyanotic and respiratory effort had practically ceased. The respirator was occupied at the time by Case 1, but it was possible to remove him for a time and this patient was placed in the respirator and kept there about ten hours. Her improvement was prompt. At the end of ten hours, however, the first patient's condition was so much worse that return to the respirator was imperative. The second patient was given artificial respiration manually together with oxygen throughout the afternoon and evening, despite which death occurred at 11:55 p. m. August 20, 1930. This patient's improvement while in the respirator was such that it seemed she might have survived if it had been possible to continue treatment in the machine. At autopsy the destructive lesions found in the cord were so complete and extensive that return of function would have been doubtful.

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Editor's Note: Description of the Drinker Respirator by the American Medical Association Council on Physical Therapy is given in the "Journal of the American Medical Association," May 9, 1931, page 1580.

CASES 3 AND 5.—A boy of eleven years and a young woman of twenty years were both transferred from other local hospitals because of intercostal paralysis. Both showed extensive paralyzes of the upper and lower extremities. When placed in the respirator their breathing was entirely diaphragmatic and they were somewhat cyanotic. These patients showed rapid return of function of the intercostal muscles and after four or five days of constant treatment in the respirator they were able to stay out for gradually increasing periods and at the end of nine days they remained out. The boy had a normal chest expansion at the end of three months. The young woman's chest expansion was somewhat less than normal when she left the hospital a month after the onset of her illness.

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CASE 4.—A girl of nine years entered Children's Hospital September 16, 1930. She had had a cough for about ten days prior to the development of symptoms of poliomyelitis. In the hospital she ran a high fever and continued to develop new paralyzes over a period of several days until she had complete paralyzes of both upper extremities, marked weakness of both lower extremities, and intercostal paralysis. Soon after the appearance of intercostal weakness she developed signs of a right-sided pneumonia. She was in the respirator from September 21, 1930, until her death on October 5, 1930. She was quite comfortable in the machine and her color was good except during occasional attacks of choking, apparently due to accumulation of mucous in the trachea or large bronchi. On October 5, 1930, she had such an attack and expired within a few minutes.

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CASE 6.—A girl of fourteen years entered Children's Hospital January 26, 1931. She had at that time generalized weakness of both upper and lower extremities and beginning intercostal weakness. The following day her breathing was entirely diaphragmatic and she was cyanotic. She was placed in the respirator and her color improved. On January 28, 1931, it was noted that the patient's right chest lagged and that the heart was shifted to the right. The left chest was strapped with adhesive to favor expansion of the right lung; the strapping was left in place for several hours and then sandbags were so placed as to impede movements of the left chest and favor expansion of the right; after two days the position of the heart had returned to normal. The patient's general condition was unsatisfactory during the first week; she looked toxic, was restless, showed evidence of vasomotor disturbance and her blood pressure was unstable. Intercostal expansion improved slowly during the first three weeks in the respirator, then quite rapidly during the fourth week, so that she could be left out of the machine for longer periods. During the fourth week the patient began to suffer from extreme mental depression due, it was thought, to prolonged illness and the fatigue of being moved in and out of the respirator. On March 1, 1931, her condition seemed such that it was thought justifiable to keep her for a time entirely out of the machine, but her depression continued, increased, and on March 5 she became irrational and semi-comatose. With this there was a little return of respiratory difficulty and it was thought her mental condition might be the result of prolonged partial anoxemia. She was returned immediately to the respirator, but despite satisfactory respiratory excursion her condition steadily grew worse, she lapsed into complete coma, there was marked neck stiffness, a left facial paralysis, and signs of an encephalitic process. Her temperature rose steadily until it reached 107.8 on March 7, when she expired while still in the respirator.

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CASE 7.—A girl of twelve years entered Children's Hospital March 7, 1931, with slight iliopsoas weakness on the left, stiff neck, and fever. Her temperature remained elevated for a week after entry and she continued to develop new paralyzes during this period. Slight intercostal weakness was apparent on

March 13; at that time she had marked bilateral deltoid weakness and general weakness of the other muscles of the upper extremities and both lower extremities. On March 14 her breathing was entirely diaphragmatic and she complained of difficulty in breathing and pain in her chest and abdomen. She was placed in the respirator and her apprehension was relieved immediately. During the next week she was kept in the respirator for periods of twelve to eighteen hours daily, and thereafter she was given from two to five hours daily in the machine. After two days of treatment in the respirator her maximum chest expansion was 1.7 centimeters; nine days later her chest expansion was 3 centimeters; and at the present time, April 8, it is 3.2 centimeters. At present she breathes comfortably out of the respirator, but becomes a little dyspneic with talking, and with quiet breathing her upper intercostals, particularly, move very little; therefore it seems advisable to continue intermittent treatment in the respirator longer.

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CASES 8 AND 9.—These patients were adults of twenty-three and twenty-six years respectively, who had intercostal weakness which was not marked enough to cause cyanosis, but which caused exhaustion and restlessness. Both patients were treated in the respirator for periods of one to three hours daily; Case 8 for twenty-five days and Case 9 for eleven days. The first of these patients had been irrational for a period of a week after his temperature reached normal. Thinking that his mental condition might be due to prolonged anoxemia, we placed him in the respirator for several hours and he remained perfectly rational from that time on. The other patient was relieved of restlessness and insomnia after short periods of treatment in the respirator had been instituted. Both patients showed considerable improvement in chest expansion following this therapy. We feel that the respirator is very useful in the treatment of cases such as these in which failure is only partial.

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Our one case of diaphragmatic paralysis differed markedly from the cases of intercostal paralysis. While it is impossible to know what the outcome for this patient will be, her response to treatment in the respirator has been interesting.

CASE 10.—A girl of seven years was transferred to Children's Hospital from another hospital on February 21, 1931. Rapid, shallow respirations were noted on the second day of her illness. Respiratory difficulty became progressively more marked and she also developed complete paralysis of both lower extremities, and marked weakness of both upper extremities, and some difficulty in swallowing. On the fourth day of her illness examination showed some limitation of intercostal expansion and almost no diaphragmatic excursion on the right. Respiration was accomplished with effort, but there was no cyanosis. In the next eighteen hours her respiratory rate ranged from thirty-six to sixty per minute, and the following morning neither side of her diaphragm moved and she was cyanotic. It was explained to her that she could be placed in the respirator and be relieved of the great effort of breathing. At first she objected to being put into the machine and after the motor was started she asked once or twice to be taken out. Within ten minutes, however, she had fallen into a sound sleep and was breathing synchronously with the machine. Later in the day she objected strenuously to having the motor turned off even for a few minutes for necessary procedures. She required a higher negative pressure than we were accustomed to using with our cases of intercostal paralysis, about 20 centimeters of pressure being used early in her course, with frequent "deep breaths" at 25 to 30 centimeters. She also was more comfortable at a more rapid rate of respiration than that of fourteen per minute (which we commonly use), and through most of her treatment respirations were maintained at the rate of thirty per minute. Her maximum chest expansion on February 22, 1931, the day treatment in the respirator was started, was 0.5

centimeter. During the first week she could remain out of the respirator only a few minutes without becoming cyanotic and complaining bitterly of difficulty in breathing. During the second week she was able to be out from two to five hours of the day and from then until now, April 9, 1931, she has been in the respirator twelve to sixteen hours each day. Her chest expansion on March 12 was 2 centimeters, and at present is 2.5 centimeters. A fluoroscopic examination made on March 12 showed no movement of the diaphragm on either side. On March 31, examination showed occasional slight movements of the diaphragm, especially on the right. The patient still shows evidence of vasomotor instability at times and at present has a slight return of her neck stiffness without any rise in temperature. Our prognosis is still guarded. Recovery of function of the diaphragm will probably be slow, if it does take place.

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The remaining five patients had respiratory difficulty due to bulbar involvement. Drinker, Shaughnessy, and Murphy⁴ indicated that in bulbar involvement the respirator is apt to be ineffective. Our experience has borne this out. Death in cases of bulbar poliomyelitis is usually due not to respiratory failure alone, but to a number of factors. These patients may have superior involvement alone without paralysis of the extremities, or trunk or bulbar paralysis may be combined with spinal involvement. When respiratory difficulty is present in these cases there are almost always other evidences of bulbar involvement. Four of these patients had difficulty in swallowing; two showed hyperpyrexia; one had facial weakness and thick speech; another had marked facial twitching; most of them showed marked variations in pulse rate and all showed evidence of vasomotor disturbance. Diplopia, though not present in any of this series, is a fairly frequent part of the picture of bulbar poliomyelitis. Respiration in the bulbar cases is often irregular, usually rapid and at times characterized by frequent sighing or voluntary attempts at deep inspiration. Hiccough may occur.

The ages of the patients in this group were 9, 17, 18, 20, and 31 years. Three of these patients were treated in the respirator only a few hours, one remained in for fourteen hours and the other for a total of thirty-six hours. Two of these patients were comatose when put in the respirator; one of these showed striking improvement in color after being placed in the machine, in the other no effect was apparent. The three who were conscious experienced considerable relief from their respiratory distress and as long as they remained conscious their breathing was synchronous with the respirator; terminally their respirations became very irregular. Death in these patients was apparently due to vasomotor failure.

In all probability cases of bulbar poliomyelitis and respiratory failure will be encountered in which the respirator will aid in a more happy termination than these cited. Even in our fatal cases, however, the use of this device seemed well worth while if only for the subjective relief of the patient. In one of our patients progressive respiratory difficulty was present three days before her death, and the relief of her apprehension and struggle for breath was worth while despite the fatal termination.

SUMMARY AND CONCLUSIONS

Fifteen patients with varying degrees of respiratory involvement due to poliomyelitis were treated in the Drinker respirator.

Nine patients who had intercostal paralysis were treated in the respirator and all responded favorably to the treatment. One patient died because treatment in the respirator had to be discontinued; two died of other complications. Intercostal paralysis is the most favorable type of respiratory failure for treatment in the respirator.

One patient who had diaphragmatic paralysis has been treated in the respirator for a period of seven weeks. She has been kept comfortable and free from cyanosis and is showing some return of function of her diaphragm.

Five patients who were suffering from respiratory failure and who had bulbar poliomyelitis were treated in the respirator. All of these patients died, but in several instances considerable subjective relief was afforded the patients by treatment in the machine.

The Drinker respirator is a most valuable means of treating respiratory failure in poliomyelitis. Treatment in the respirator is not only an immediate life-saving measure, but is also of value in increasing chest expansion and providing rest during convalescence in milder forms of respiratory weakness.

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INFILTRATION ANESTHESIA IN OBSTETRICAL SURGERY*

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THIS report of one hundred and fifty-two cases of low transperitoneal section under infiltration anesthesia is offered in the hope that it will be of interest as an addition to the clinical evidence on the value of this type of anesthesia in abdominal delivery. For the sake of throwing additional light on certain points, a few brief references are made to a series of four hundred and fifty pelvic deliveries in which local anesthesia was used.

The only clinic in this country that has given this method of anesthesia a trial in obstetrical surgery is the Chicago Lying-in Hospital, under the direction of Dr. J. B. De Lee. The institution now has a record of at least 479 low sections under local (infiltration) anesthesia, for Dr. J. P. Greenhill of the staff recently informed me that 55 per cent of their total of 874 low sections had been so performed. Doctor Greenhill has performed 70 per cent of his own series of 111 cases (maternal mortality zero) under infiltration anesthesia. The hospital rating during the past year has been 90 per cent, and that of Doctor Greenhill's own work, 92 per cent.¹

* Read before the Anesthesiology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

SOME EUROPEAN STATISTICS

The only really large series of cesarean sections under local anesthesia in Europe is, I believe, that of the Walthard clinic at Zürich. Walthard adopted this method in 1914 while at Frankfort. Frey of the Walthard clinic remarked in 1928² that, except for the Basel clinic, the only others in Europe who had taken up the cause of local anesthesia for sections were Waldstein³ and Frigyesi. Frey undoubtedly had in mind an active and consistent championship, since several clinics in Europe have reported at least some use of infiltration anesthesia in cesareans. For example, Schweitzer mentioned in 1927 that at Chemnitz sections were performed under local anesthesia in certain special cases.⁴ Local anesthesia with classical section has been reported as early as 1906.⁵ In 1914 Traugott reported twelve sections, some under local and some under sacral anesthesia, partly with favorable and partly with unfavorable results.⁶ Adler, head of the gynecological department of the Wilhelmina Hospital, Vienna, stated in 1926, "The performance of section or the supravaginal amputation of the pregnant uterus can be entirely painless. I have performed about thirty of these operations in cases where general anesthesia was contraindicated, and had to supplement with ether only four times."⁷ The next year these cases were reported as part of an impressive series of major gynecologic operations under local anesthesia.⁸ Nevertheless, we are safe in saying that the body of clinical material, while larger in Europe than in this country, is small.

ADVANTAGES OF LOCAL ANESTHESIA

The chief advantages afforded by local anesthesia in cesarean section are: the sparing effect on the heart, the sparing effect on the respiratory system, the absence of accentuating influence on toxicity, the reduction in loss of blood, and, because of the preservation of uterine tone, that of the chance of uterine hemorrhage, a favorable influence on the organism in resisting infection, the elimination of shock, the marked influence in the reduction of gastro-intestinal disturbances, and the favorable influence on wound-healing. For the child, it affords relief from the asphyxiating effect of general anesthesia.

Effect on the Heart.—The sparing effect of local anesthesia on the heart becomes apparent when serious abnormalities of the heart are present. The writer was able to observe only a few such patients, eight in all. In these the pulse and blood pressure were unaffected during the operation; all returned to their beds without the aid of cardiac stimulation. One of the two deaths in the series occurred in this group on the fifth day; autopsy showed occlusion of the left pulmonary artery. The Walthard clinic at Zürich, however, has reported a group of nineteen patients with very grave heart defects where section was performed under local anesthesia; they attribute the absence of mortality in this group largely to the use of the local anesthesia.⁹

Effect on the Respiration.—The sparing effect on the respiratory tract was shown in my series by the absence of all respiratory complications, except for the fatal pulmonary embolus in the heart patient. I shall cite one case which illustrates the sparing effect of local anesthesia on the lungs. The patient, in an advanced stage of pulmonary tuberculosis, was a gravida one, aged thirty-seven years, who had been treated in a sanatorium four years before for chronic pulmonary tuberculosis. Four pulmonary hemorrhages occurred during gestation, and during the last four months the patient was confined to her bed. At the thirty-eighth week, I delivered a living child under local anesthesia. The operation and convalescence were uneventful, and the patient left the hospital on the fourteenth day.

Interesting in connection with the absence of pneumonia in the series is the fact that it contained twenty-one eclamptic or preëclamptic patients. As regards the frank eclamptic patients, with more or less edematous lungs, the predisposition to postoperative pneumonia is well known. Of five deaths from postoperative pneumonia in seventy-two cesarean section patients under general anesthesia at the Walthard clinic, four were eclamptic patients.¹⁰ The record of that clinic of two hundred and eighty sections under local anesthesia (with no eclamptic patients, however) without a case of pneumonia is surely evidence of the favorable influence of this type of anesthesia.

When pregnancy is complicated by toxic symptoms, inhalation anesthesia is an aggravating element. In the toxic patient the carbon dioxid combining power is low; the kidneys are impaired and there is more or less urinary suppression; uric acid is increased, showing liver impairment; acidosis is present, and increasing as time goes on; the blood pressure is high; and the tissues are as a rule in a state of edema. All the vital organs are damaged to the breaking point. Stander of Baltimore states that ethylene, ether, and chloroform produce much the same blood changes as does eclampsia, and that sparing the toxic women from these substances works to their benefit. He adds, "The results of our experimental work on general and local anesthesia lead to the conclusion that in certain severe types of eclampsia it might be advisable to end pregnancy under local or spinal anesthesia, but as yet we have no clinical experience in support of this contention."¹¹ He has found that almost lethal doses can be injected into dogs without any material change in the blood chemistry of the animals. He states further, "In experiments with novocain or procain, injected subcutaneously, I have been unable to detect any changes in the blood constituents due to anesthesia. A very large dose of procain (twenty cubic centimeters of a two per cent solution) has no effect on the carbon dioxid combining power, sugar, lactic acid, uric acid, inorganic phosphorus, nonprotein nitrogen, or ureanitrogen of the blood. It follows that the use of such a local anesthesia would probably be quite safe in eclampsia."¹² Dr. John Polak, in the discussion of Doctor Stander's article, con-

cludes that anesthesia is the thing to be avoided in the eclamptic patient.¹³

My group of twenty-one eclamptic and pre-eclamptic patients delivered by section will illustrate the results of local anesthesia with toxic patients. Eleven of these patients, before I had ever seen them, had had convulsions antepartum. A twelfth patient had a first convulsion on the table. There was one death, in coma, on the fifth day, following ten postpartum convulsions. Two others of those who had had eclamptic outbreaks had further convulsions postpartum. Nevertheless, the smoothness of convalescence exceeded considerably the expectation for such a group.

The influence of infiltration anesthesia in reducing loss of blood is favorable in any surgery. In addition, the maintenance of uterine tone has a high value in the prevention of uterine hemorrhage. This anesthesia may be termed a prophylactic against postpartum hemorrhage. No patient in this series was transfused because of hemorrhage. Three, however, received blood for other reasons.

This favorable influence was especially observable in the cases of placenta previa, of which there were twelve, and in the cases of premature separation of the placenta, of which there were four. Frey directs especial attention to the value of local anesthesia in cases of section in placenta previa, on the basis of eighty patients at the Walthard clinic, with one death, and that patient having had as a complication an extensive carcinoma of the stomach, and other conditions.¹⁴

Disadvantages of General Anesthesia.—There are two disadvantages of general anesthesia which have a special significance in patients in whom section is performed late in labor: its influence in increasing acidosis, and its tendency to lower the resistance of the peritoneum to infection. The former condition is already present in the majority of patients who have been long in labor; and the risk of infection has been rising with the progress of labor. It has been stated that anesthesia causes disturbance in the oxydation of the cells; that the result is the disappearance of alkalinity; that this condition, when not overcome, is manifested as stubborn vomiting, meteorism, and headache.¹⁵ From the Women's Clinic of Berlin came a study by Schultze on the marked effect of general anesthesia in impairing metabolic processes, under the title "Narcosis Acidosis."¹⁶ As to the second disadvantage, Finsterer has remarked the unfavorable influence of ether and chloroform on the resistance of the peritoneum to infection.¹⁷ The results in those of the series that were operated late in labor illustrate the desirability of avoiding these disadvantages by substituting local for general anesthesia. Among this group were a few "neglected cases." I shall give the details of one case. When I first saw the patient she had been in labor for thirty-eight hours; dilatation was incomplete; the head was at the pelvic brim. The convalescence was stormy, but the patient left the hospital on the fourteenth day. While the laparotrachelotomy possesses inherent factors of safety which make section possible in cases that have had a test of

labor, I believe that to the use of local anesthesia is due the absence of maternal mortality in this group.

Absence of Shock.—A notable advantage of local anesthesia is the absence of shock. I do not mean merely the negative one of the avoidance of the risk of shock from too much anesthesia. Infiltration anesthesia cuts off the afferent impulses which reach the vital centers when the patient is asleep but the tissues are not. Again, there is little chance with local anesthesia of the rough handling of tissues, the tugging on intestines and pelvic viscera, improper retracting, or jabbing with rough sponges, any of which may cause shock, as the patient will be quick to let you know of any such breach of surgical technique. The tranquil belly, also, is favorable to the avoidance of shock, for the surgeon is spared the necessity of fighting back out of the field intestines forced there by respiration.

Because of the excellent uterine tone, the placenta usually separates spontaneously.

Accurate adaptation of the edges of the uterine incision is insured because of the good uterine contraction and of the absence of blood in the field.

Less Gastro-Intestinal Disturbance.—We now reach the consideration of what I believe to be one of the most important of the advantages of local anesthesia. The small amount of gastrointestinal disturbance in this series can be accounted for only by the substitution of local for general anesthesia. It is true that the type of operation removes some of the sources of disturbance that are possible in classical section; nevertheless, as long as there is still the influence of general anesthesia we can hardly expect to get through one hundred and fifty-two operations with only three cases of distention (and only one of these severe) and with an almost total absence of nausea and minor discomforts. Only twice was gastric lavage necessary. The serious patient was relieved by enemata and hypertonic salt solution, administered intravenously. There were two other complications which will be considered in a moment. The remaining patients were really comfortable, tolerating water by mouth from the start, so that there was no need of supplying fluids by rectum, and usually beginning soft diet on the second day.

One of the complications just referred to was an intestinal obstruction due to the attachment of a loop of the ileum to the stump of a freshly removed myoma. The other, due to a surgical mishap, the catching of a loop of gut in the suture of the incision, resulted in a parting of the incision (the only instance of disturbed wound-healing). As it was precisely in these two patients that the symptoms of surgical shock had appeared, the situation of both patients was for a time most grave.

Wound-healing in this series, with the one exception described, was excellent.

All the complications and disturbances in the series have been mentioned, with the exception of a case of phlebitis of the left leg in one of

the heart patients, which developed on the fourteenth day. The number of patients whose convalescence was disturbed in any manner was small; but the point that I wish to stress is that in the large remaining number the recoveries were on a much higher level than the usual good recoveries. This favorable result I ascribe directly to the use of local anesthesia.

Local Anesthesia and the Child.—Up to this point we have dealt with the advantages of local anesthesia in cesarean section only from the standpoint of the mother. The undesirable effect of general anesthesia on the child needs little comment. The experience of the Zurich clinic has shown that the condition of the child on delivery is directly dependent on the duration of the narcosis preceding its birth. With pure chloroform narcosis, the children are free from apnea only within the first fifteen minutes. Since it was possible only in exceptional cases to deliver the child within twenty minutes after the beginning of the narcosis, and since the latter was often supplemented with ether, only a very few babies were free from asphyxia.¹⁸ Frey, who made this report, referred to the animal experiments of Küstner, which showed that after a very few minutes of deep general narcosis the respiratory centers of the young are so seriously affected that death results unless oxygen is administered. He quoted, as well, the figures of Denker in a series of extraperitoneal sections, which showed that only 3.4 per cent of the babies were free from apnea.

As I use local anesthesia in pelvic deliveries as well as in abdominal, I have had the opportunity to observe in several hundred cases the advantage to the child resulting from the elimination of general anesthesia. All children that are normal, viable, and uninjured breathe spontaneously. This group of pelvic deliveries under local anesthesia is of interest, also, in its support of my observations in the series of cesarean sections that this type of anesthesia is without influence on the heart tones. I mention this point because, although in many hundred pelvic deliveries in European clinics there is no complaint on this score, one report contained the statement that in three cases out of a series of thirty under local (pudendus) anesthesia the heart tones weakened just after the administration of the local anesthesia, so that the babies had to be delivered with forceps.¹⁹ Benthin of the Zange-meister clinic (Königsberg), replied in discussion that they had not found any noticeable alteration in the heart tones.²⁰

TECHNIQUE OF LOCAL ANESTHESIA

Simplicity of the Technique in Local Anesthesia.—Not least among the advantages of infiltration anesthesia is its simplicity. A solution of one-half of one per cent novocain is prepared, to which is added five minims of suprarenin to each 100 cubic centimeters of solution. The total amount required for low section varies from 250 to 350 cubic centimeters. Farr puts the dangerous dose at 750 cubic centimeters of one-half of

one per cent solution. The solution is administered with one of the numerous automatic syringes, or with a battery of 20 cubic centimeters Luer syringes. A wheal is made at the upper end of the proposed incision with a fine needle. Through this wheal the fluid is distributed the full length of the incision down to the fascial plane. The skin incision is made immediately, and without pain. Next the recti muscles are infiltrated and incised, so that the preperitoneal space is exposed. This is infiltrated, and the peritoneal cavity is opened. The peritoneum covering the lower segment is raised by a gigantic wheal, and the fluid is pressed laterally so that the peritoneum is raised off the lower segment of the uterus. The infiltration is complete, except that about 20 cubic centimeters are put into the belly of each rectus muscle before the local anesthetic is put aside. If the infiltration has been carefully done, about 300 cubic centimeters, or less, of the solution may have been used. This is sufficient to continue the anesthesia throughout the operation.

The success or failure after the infiltration is done depends upon the skill and dexterity with which the surgeon handles the tissues. All tissues must be cut with the keenest of instruments; all retraction should be done manually, and with care; the suction pump should replace the sponge. The handling of the peritoneum demands the greatest care; and all traction on pedunculated organs should be avoided.

THE OBJECTIONS TO LOCAL ANESTHESIA

With these advantages in favor of local anesthesia, what objections can account for the general reluctance to adopt its use in abdominal deliveries? It has been asserted that it is time-consuming. If the dictum of Braun²¹ regarding infiltration anesthesia, namely, to infiltrate, then wait at least several minutes, often longer, held, this might be a serious objection. Wischniewski²² asserts that this unnecessary rule of Braun's has prevented infiltration anesthesia from taking its rightful place, and has resulted in preference being given to various block anesthetics. As a matter of fact, the low transperitoneal section takes only slightly longer under local than general anesthesia. To complete this operation in less than one hour from the beginning of the general anesthesia would be difficult; this is the average time of this series under local anesthesia. It may be said that local anesthesia does not consume time, but allows time if it is desired.

Again, the fear of psychic shock has been advanced to account for this reluctance. The writer believes psychic shock exists chiefly in the surgeon's mind, and that the patient to whom the advantages have been explained has no more fear of local than of general anesthesia. High-strung patients have not proved poor subjects for local anesthesia.

Surgeons who perform other operations under local anesthesia may hesitate at the prospect of the absence of the soothing morphin preparation, the use of which gives apneic babies—though in not any such degree as does general anesthesia.

Allonal, either per os or intramuscularly, proves a fairly satisfactory substitute. Some of the patients do complain of a certain amount of pain, and there are a few painful spots, notably during the delivery of the head. About 40 per cent received some analgesia. Often this was merely to take the edge off labor pains; chloroform was used for this purpose. About 60 per cent received some form of morphin after the baby was delivered. Of the patients whose tubes were excised, some received deep ethylene anesthesia. The patients in whom complications were encountered (fibroids or cysts) received general anesthesia during the removal of the pathologic tissue. The writer wishes also to add that ten of the patients were not awake, as they had received introductory 10 grams of sodium amytal sleep. Not one of the patients who were awake, however, requested to be put to sleep during the section part of the operation.

The significant advantages which have been enumerated and illustrated in this paper need not be withheld from the patient for fear she will be subjected to a disagreeable experience. The writer found the splendid response of the patients to be by no means the smallest element of satisfaction in this work.

1200 South Alvarado Street.

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DISCUSSION

FRANK C. AINLEY, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Pierce is to be congratulated upon the excellent results which he has obtained in this series of cases, and I am glad to thank him for presenting the paper with its valuable material.

My experience with infiltration anesthesia in obstetrical surgery is limited and does not qualify me to criticize the procedure. However, the experience which I have had with it leads me to believe that the incidence of postoperative psychic shock is a point of importance to be considered.

Doctor Pierce's cases were very comfortable after operation and wounds healed well, but I am of the opinion that equally good results can be obtained with the use of nitrous oxid and oxygen anesthesia.

✱

E. M. LAZARD, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Pierce is certainly to be congratulated on the results of his work on infiltration anesthesia in obstetrical surgery, as well as for the careful and complete consideration of the advantages of local anesthesia as contrasted with general anesthesia. Personally I cannot speak from experience, as what limited experience I have had with it has been in some of the cases at which I have been privileged to be present with Doctor Pierce in several of the low cervical sections. This procedure seems to be particularly indicated where it is necessary to operate on toxic or eclamptic patients, as undoubtedly a great part of the added danger of operative interference in these cases has been due to general anesthesia.

This report is a great inducement to perfect one's self in this method, as results such as this seem to indicate the superiority of this method of anesthesia.

✱

LYLE G. MCNEILE, M. D. (Pacific Mutual Building, Los Angeles).—Too little consideration is given by obstetrical surgeons to the importance of carefully selecting an anesthetic. In general the plane of anesthesiology is very low. While, as Doctor Pierce has pointed out, the dangers of general anesthesia are generally recognized, obstetricians as a rule have been very backward in adopting procedures which are not in general use. Doctor Pierce, in his summary of the dangers of general anesthesia, omitted one factor which, particularly in the toxemias of pregnancy, may be of vital importance. I refer to the causation or augmentation of an acidosis, which seems definitely associated with the use of inhalation anesthesia. I believe that Doctor Pierce omitted an important although indirect danger from general anesthesia which may be called unnecessary traumatization of the tissues, which may result from unnecessary haste or needless and rough handling of the tissues, made possible as the result of the patient's unconsciousness. Doctor Pierce has given us a comprehensive outline of the present status of local anesthesia, particularly as applied to cesarean sections. In the average patient in which cesarean section is done for disproportion, if the patient is in good physical condition, adequate hospital facilities, and a trained anesthetist available, I do not feel that the advantages of local anesthesia are particularly marked. In my private practice and at the Los Angeles General Hospital, I have come to the conclusion that local anesthesia has as its field of greatest usefulness the border-line case or the case which is not in good physical condition. When abdominal delivery is indicated in the patient with a cardiac condition, particularly with a decompensated heart; in a toxemia of pregnancy, or as a result of any kidney condition; or in a patient having either an actual or a potential pulmonary condition; in the very rare patient whose resistance has been lowered as a result of a long-standing infection, particularly pyelitis; or the patient with marked primary or secondary anemia, I believe general anesthetics are contraindicated, and the use of local anesthesia may well insure a greatly improved postoperative result.

Doctor Pierce has adequately presented the essential steps in technique. I agree with Doctor Pierce that the fear of psychic shock has been greatly exaggerated, but I feel that he has not adequately stressed the importance of explaining to the patient in great detail the procedure which is to be followed and the advantages to her and to her baby. This explanation should be given before the patient is placed upon the table, and the surgeon should not neglect to address a few words of encouragement to the patient from time to time during the course of operation.

FOREIGN BODIES IN THE AIR PASSAGES— THEIR DIAGNOSIS AND REMOVAL*

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AND

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THE diagnosis of foreign bodies in the trachea and bronchi and the mechanical problems involved in their removal are at times sufficient to tax the skill, judgment, and resourcefulness of the endoscopist. Each patient offers an individual problem and, though one patient's condition may be diagnosed easily without bronchoscopic examination, another may require bronchoscopy before the presence of a foreign body can be ruled out. Familiarity with the essentials of the history, physical findings, roentgen shadows, and bronchoscopic inspection is indispensable for correct diagnosis and treatment.

HISTORY

The patient's story is highly significant. If a previously healthy child is found in a paroxysm of coughing, choking, and wheezing, associated with cyanosis, the presence of a foreign body in the air passages is very probable. Children seen after the acute paroxysm has passed may have only slight cough, low grade fever, and wheezing. Even though the acute initial attack has subsided, the patient should not be allowed to go untreated.

An adult may give a definite history of the aspiration of a foreign body and efforts on his part to remove it. The symptoms are the same as those described in the case of a child, and are attributable to two factors:

1. Irritation caused by the presence of the foreign body.
2. Mechanical interference with the entrance and exit of air.

The bronchus can develop a tolerance to the presence of certain inorganic foreign bodies, but the mechanical factors interfering with the normal air flow persist unless the foreign body so shifts in position as to permit the usual passage of air to the lung. When symptoms persist the picture may suggest bronchitis, lung abscess, asthma, or bronchiectasis, depending on the type of bronchial occlusion and the complications.

The severity of the symptoms and the extent of the findings will depend on the location of the foreign body and the amount of lung tissue deprived of its normal air flow. If a small minor bronchus is involved, the symptoms and findings may appear trivial; but a foreign body so situated in the trachea or at its bifurcation as to interfere with the air flow to both lungs will produce a startling array of symptoms and extensive bilateral signs. Such a picture is the result of the sudden and marked reduction in vital capacity (Fig. 1).

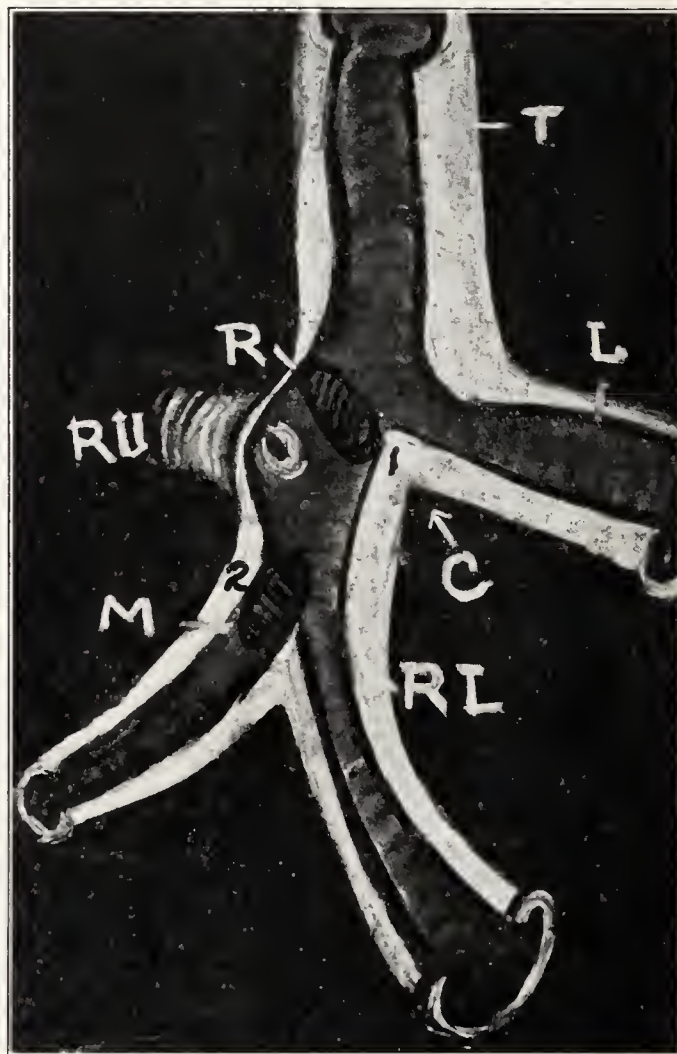


Fig. 1.—Diagram of right tracheobronchial tree: T—Trachea. C—Carina (bifurcation of the trachea). The foreign body (1) in the right main bronchus (R) interferes with the air flow to the entire right lung, leads to a tremendous reduction in the vital capacity, and is associated with grave symptoms and extensive findings. These findings are limited to the right lung unless secretions spill across the carina (C) into the left main bronchus (L). If the foreign body shifts in position, drops deeper into the bronchus and lodges at site number 2, the air can enter the right upper lobe (R U) and the right lower lobe (R L), but not the middle lobe (M). The reduction in the vital capacity is less marked, the symptoms are less severe, and the abnormal physical signs are limited to the middle lobe.

PHYSICAL FINDINGS

Examination will show abnormal chest signs having a relation to:

1. The position of the foreign body.
2. The type of obstruction to the air flow.
3. The amount and location of intrabronchial secretion associated with the presence of the foreign body.

Position of the Foreign Body.—The higher up in the tracheobronchial tree the foreign body settles the more alarming will be the signs and symptoms.

Type of Obstruction to Air Flow.—An intrabronchial foreign body may be so situated as to permit the normal air flow, or it may prevent either entrance or exit of air, or both. When both entrance and exit are shut off, an obstructive pulmonary atelectasis follows; but if air can get past the foreign body and cannot escape, an obstructive pulmonary emphysema ensues. The abnormal physical findings in patients with intra-

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bronchial foreign bodies will most commonly be those of an obstructive emphysema or obstructive atelectasis.

Obstructive Emphysema.—In this condition air is trapped beyond the foreign body and produces an overdistention of that portion of the lung supplied by the obstructed bronchus. The outstanding physical signs are diminished tactile fremitus, hyper-resonance or high-pitched tympany, diminished or absent breath sounds, and diminished spoken and whispered sounds; râles most likely will be absent.

Obstructive Atelectasis.—In cases of obstructive atelectasis the foreign body is sometimes lodged so firmly in the bronchus as to occlude completely the bronchial lumen. This blockading process is often increased by the edema and granulation of the bronchial mucous membrane. In such instances no air can enter or escape from this portion of the lung. The air that is present beyond the foreign body is absorbed and a localized pulmonary atelectasis ensues. The chest wall is retracted over the diseased area, the percussion note is dull or flat, râles are absent, and the heart, trachea, and diaphragm are displaced toward the side of the atelectasis. Expansion, tactile fremitus, breath sounds, voice sounds, and whispered sounds are diminished or absent. If the atelectatic portion is immediately adjacent to the trachea or main bronchus, all the signs of consolidation may be elicited.

Intrabronchial foreign bodies without obstructive atelectasis or obstructive emphysema may give no abnormal chest findings, as air can enter the bronchus distal to the foreign body and return without hindrance.

Amount and Location of Intrabronchial Secretion.—When the foreign body is associated with

excessive intrabronchial secretion or pus, these secretions will follow the laws of gravity and collect at the most dependent areas. These areas will be different, depending upon whether the patient is erect, flat, or lying on his side at the time of the examination. We have designated this flow of intrabronchial secretion as "internal drainage" and have fully discussed it in a previous paper.¹ Suffice it to say that abnormal physical findings will be elicited over the areas to which the secretion spills and consequently may be on the side of the chest opposite from the foreign body (Figs. 2a, 2b).

ROENTGEN AND FLUOROSCOPIC EXAMINATIONS

Every patient suspected of having a foreign body in the air passages should be examined both fluoroscopically and roentgenologically. Special care should be taken to differentiate foreign bodies in the esophagus from those in the tracheobronchial tree (Figs. 3 and 4).

If a tracheobronchial foreign body is present, one may note respiratory alterations in lung density and shifts in position of the heart, mediastinum, and diaphragm on fluoroscopic examination. These same changes may be noted on serial x-ray films taken at the end of inspiration and expiration, respectively. The area examined should include the region from the nasopharynx to the tuberosities of the ischia. Roentgenograms of these areas are taken to recognize multiple, distantly separated foreign bodies and to localize those which might have been in the bronchus but were later coughed up into the nasopharynx and swallowed. Such foreign bodies will sometimes be found in the stomach or intestine. Foreign bodies opaque to the x-ray usually will be well

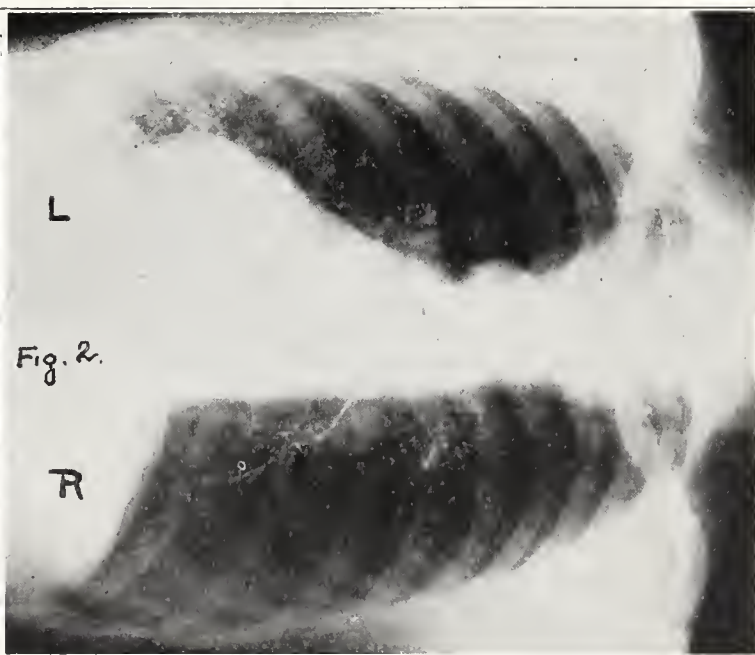
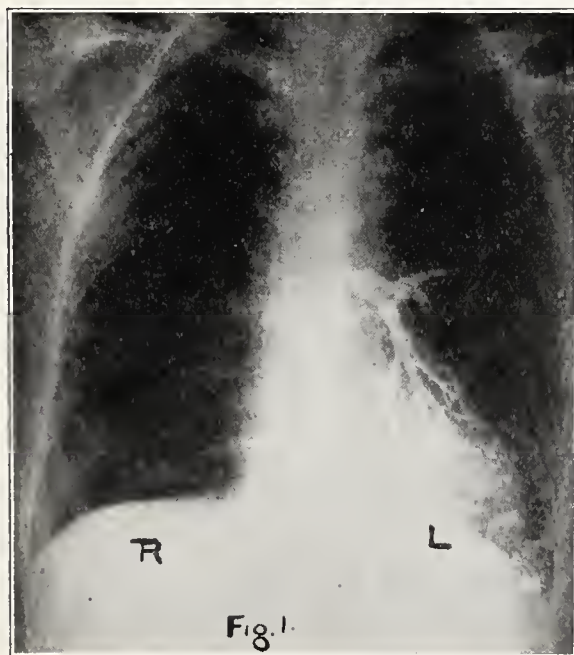


Fig. 1.—Roentgenological evidence of "internal drainage": X-ray of patient in whom iodized oil was introduced through the mouth into the left main bronchus without any type of anesthesia. Note the absence of oil in the bronchi of the right lung.

Fig. 2.—X-ray of the same patient taken after he had been lying on the right side for a few minutes. The oil has begun to spill over from the left side into the right. There was no cough or expectoration during the interval between the taking of films 1 and 2. This illustrates the principle of "internal drainage" and accounts for the production of abnormal physical findings at sites quite distant from the original lesion.

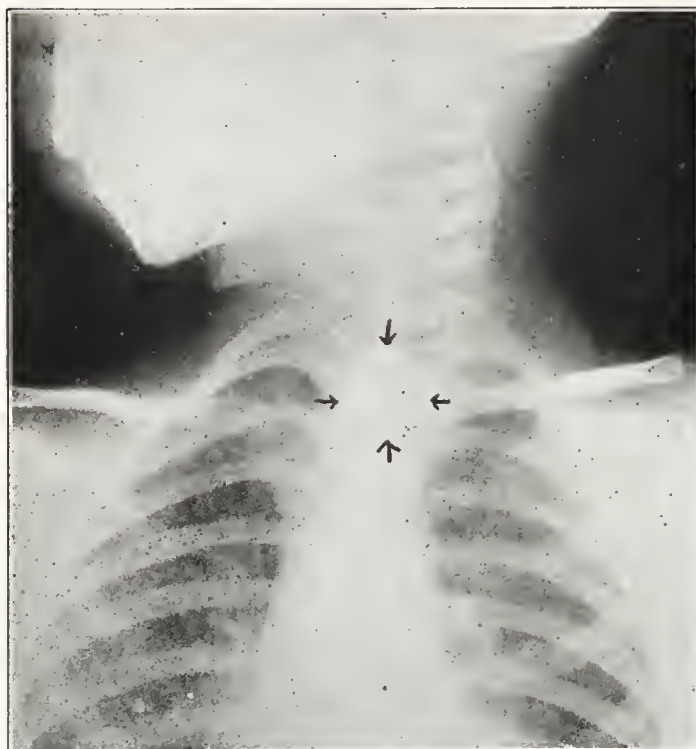


Fig. 3.—Coin in the esophagus: The coin was removed by esophagoscopy and the patient made an uneventful recovery. It is important to differentiate tracheal from esophageal foreign bodies. Foreign bodies in the esophagus have their widest surface showing on the anteroposterior x-ray plates, but tracheal foreign bodies show up best on the lateral plate. This difference is accounted for by the necessity of the foreign body assuming an anteroposterior position in order to pass between the vocal cords into the trachea. The opposite plane must be assumed to pass behind the larynx into the esophagus. (Compare with Fig. 4.)

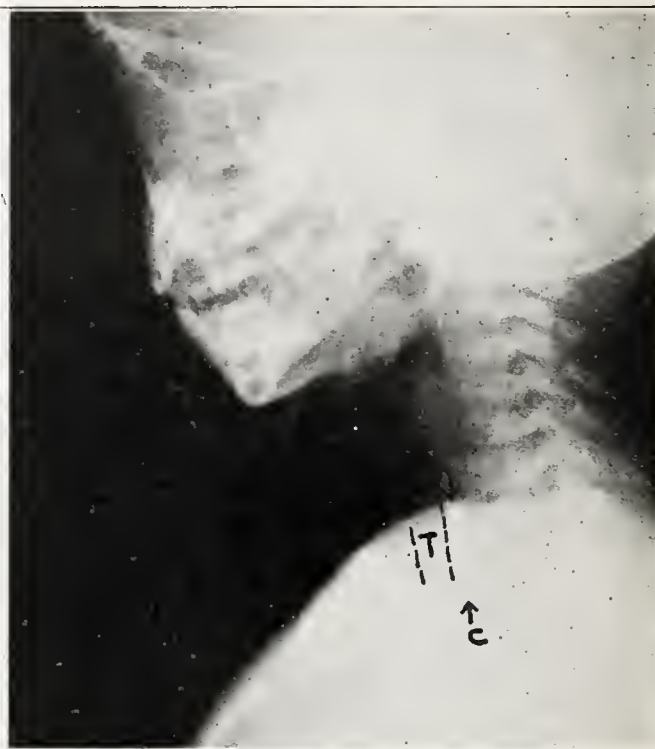


Fig. 4.—Coin in the esophagus (lateral view, same patient as Fig. 3). The narrow edge of the coin is seen behind the trachea. T—Trachea. C—Coin in the esophagus. A large esophageal foreign body may press forward on the posterior tracheal wall, compress the trachea, interfere with air flow to the lungs, and give signs and symptoms suggestive of a tracheal rather than an esophageal foreign body. When a foreign body blocks the esophagus, the upper esophageal secretions well up and spill down over the interarytenoid space into the trachea and bronchi. Cough, wheezing, dyspnea, and expectoration follow, and abnormal physical findings are elicited over the lungs. A little bismuth or barium given by mouth will aid in the differential diagnosis of nonopaque tracheal and esophageal foreign bodies.

visualized, but nonopaque objects are diagnosed on a basis of the type of obstruction which they produce: obstructive emphysema or obstructive atelectasis (Figs. 5 and 6). A nonopaque intrabronchial foreign body which does not interfere with the ingress and egress of air may show no evidence of its presence fluoroscopically or roentgenographically, and this is the type which requires a bronchoscopic examination for diagnosis as well as treatment.

As soon as the diagnosis is established, the physician should insist on the immediate removal of the foreign body by means of the bronchoscope. If the diagnosis remains uncertain but possible, bronchoscopy has a twofold purpose, namely, diagnosis and treatment.

BRONCHOSCOPY

From the very start some cases are exceedingly urgent, and the symptoms are so marked that bronchoscopy has to be done without waiting for any preliminary preparation or cocainization of the patient. One who has had a foreign body in the tracheobronchial tree for weeks or months may be relatively free from symptoms. This case offers less of an emergency, and the preliminary preparation and cocainization can usually be carried out over a longer period of time. However, this patient suddenly may become a desperate risk because of an unfavorable shift in the position of the foreign body. This turn for the worse may

occur when the services of a trained bronchoscopist are not available, and death may take place before assistance can be had. For this reason the prompt removal of intrabronchial foreign bodies should be insisted upon.

BRONCHOSCOPIC TEAM

The importance of a highly trained operative team in the removal of foreign bodies in these emergency cases cannot be overemphasized, as speed and skill determine the outcome. Expeditious removal of the foreign body is dependent on the help of trained assistants. As emphasized by Chevalier Jackson,² periods of emergency are no time for this training; therefore a team must be developed before such emergencies arise so as to function smoothly when suddenly called upon.

ANESTHESIA

We use local anesthesia almost exclusively. Only in rare instances do we use ether, and when employed it is generally for a child. We believe that the amount of trauma and incident risk are less under a short, light ether or nitrous oxid anesthesia than would be the case with a struggling child under a local anesthetic.

TECHNIQUE

All the laryngeal and bronchoscopic work is done under direct vision with good illumination. The laryngoscope and bronchoscope are sepa-



Fig. 5.—X-ray plate of child with watermelon seed in the right main bronchus: The seed itself is not seen on the x-ray plate, but there is an obstructive emphysema of the right lung. On this side the chest wall is distended, the intercostal spaces are widened, the diaphragm is depressed, and the lung field is exceptionally clear. The heart is displaced to the left and the left lung contains less air than the right. Fluoroscopically the heart and mediastinum shift to the left on expiration, but return on inspiration. (Compare with Fig. 6.)

rately lighted (Fig. 7). The laryngoscope is employed to raise the epiglottis and to bring the laryngeal opening into view. This can be done in a few seconds. With this instrument held in position, the bronchoscope is inserted into the trachea. The laryngoscope is then withdrawn, but the bronchoscope is kept in place (Fig. 8).

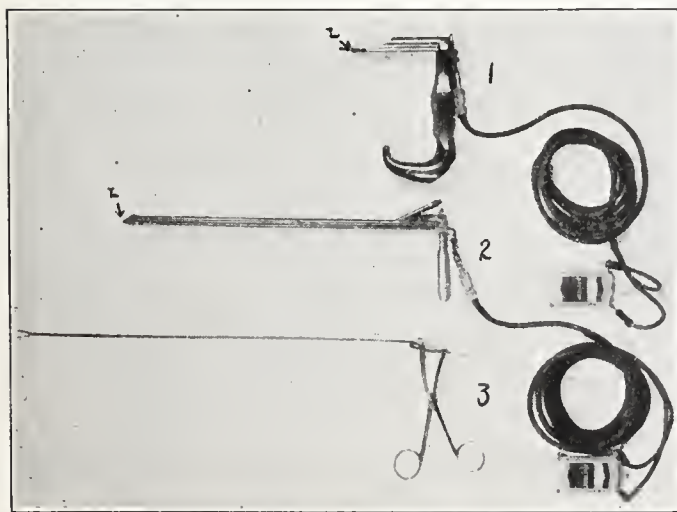


Fig. 7.—Bronchoscopic instruments employed for the removal of watermelon seed from the bronchus. The illumination is direct; the lights (L) are situated at the end of the instrument which passes into the depths of the bronchi. 1, Jackson's laryngoscope; 2, Jackson's infant bronchoscope; 3, foreign body forceps.

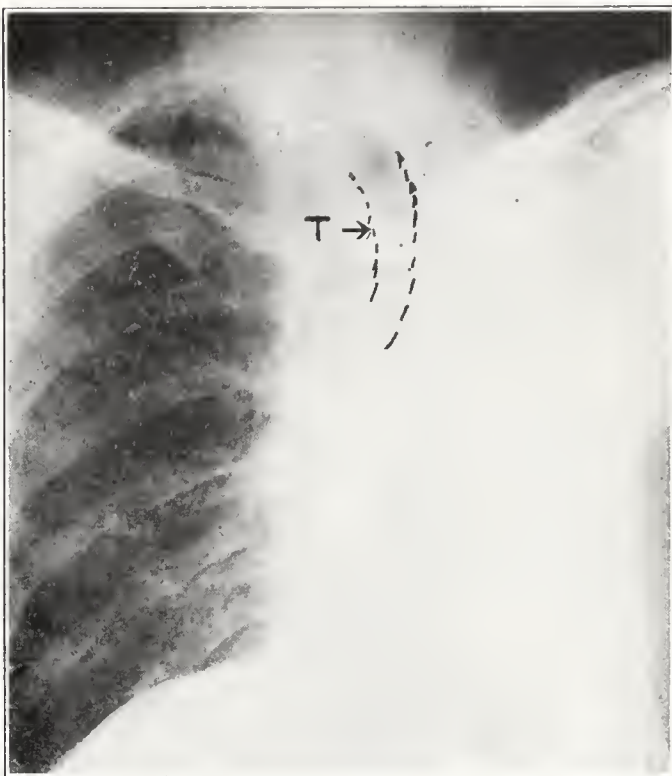


Fig. 6.—Obstructive atelectasis of left lung: T—Trachea. The left lung field is gray and on this side the thoracic cage is narrowed, sunken, and retracted. The left intercostal spaces are also narrowed. The heart and trachea are drawn tremendously to the left. The diaphragm is usually elevated on the affected side.

BRONCHOSCOPIC INSPECTION

Preliminary studies may give a clue to the probable site of the foreign body, and this region is the first to be examined through the bronchoscope. But if the foreign body is not on the side where physical findings and roentgenograms located it, the opposite bronchial openings must be examined, as the foreign body may have moved over from one lung into the other. This entire inspection usually can be done in less than one minute.

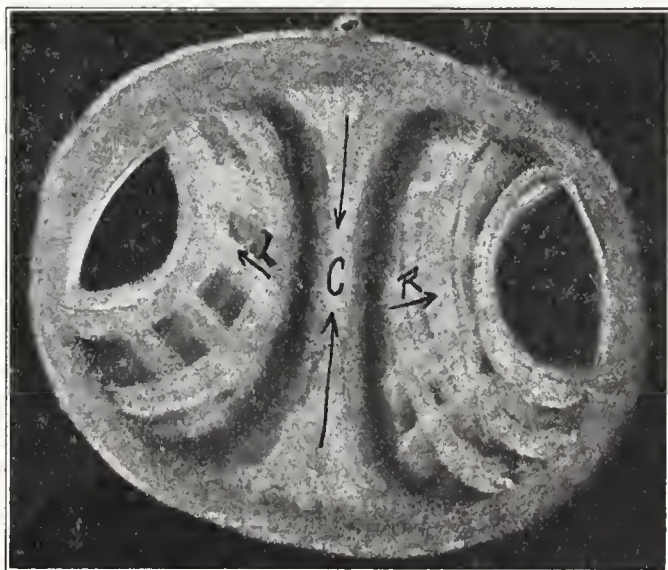


Fig. 8.—Bronchoscopic view at the region of a normal carina. (Diagrammatic sketch.) C—Carina (bifurcation of the trachea). R—Right main bronchus. L—Left main bronchus.



Fig. 9.—Types of foreign bodies removed from the "food and air passages."

MECHANICAL REMOVAL OF THE FOREIGN BODY

Having located the foreign body, one's first impulse is to grasp it hastily and quickly remove it. Haste here is not wise. Before an attempt is made to extract a foreign body, it should be studied from all possible angles to determine the mechanical difficulties present and to select the best method of removal.

As a rule all foreign bodies are removed much more readily if bronchoscopy is done immediately. If days are allowed to pass before treatment is instituted, one has to deal not only with the foreign body itself but also with the secondary inflammatory changes which result from its prolonged stay. The mechanical principles involved in the removal of foreign bodies depend largely upon whether the object is smooth or sharp—except for peanuts and cockle burs, which are in a class by themselves because of the rapid and terrific inflammatory reaction which they set up (Fig. 9).

Smooth Foreign Bodies.—If the patient is seen before severe secondary inflammatory changes have taken place, the removal of a smooth foreign body can be accomplished quite readily (Fig. 10). Smaller objects can be removed through the bronchoscope itself, but those too large to pass through the instrument must be removed by a special technique (Figs. 11 and 12).

Sharp Foreign Bodies.—In dealing with sharp objects one must be sure that the point of the foreign body is not imbedded. Traction under such circumstances will result in an abrasion,

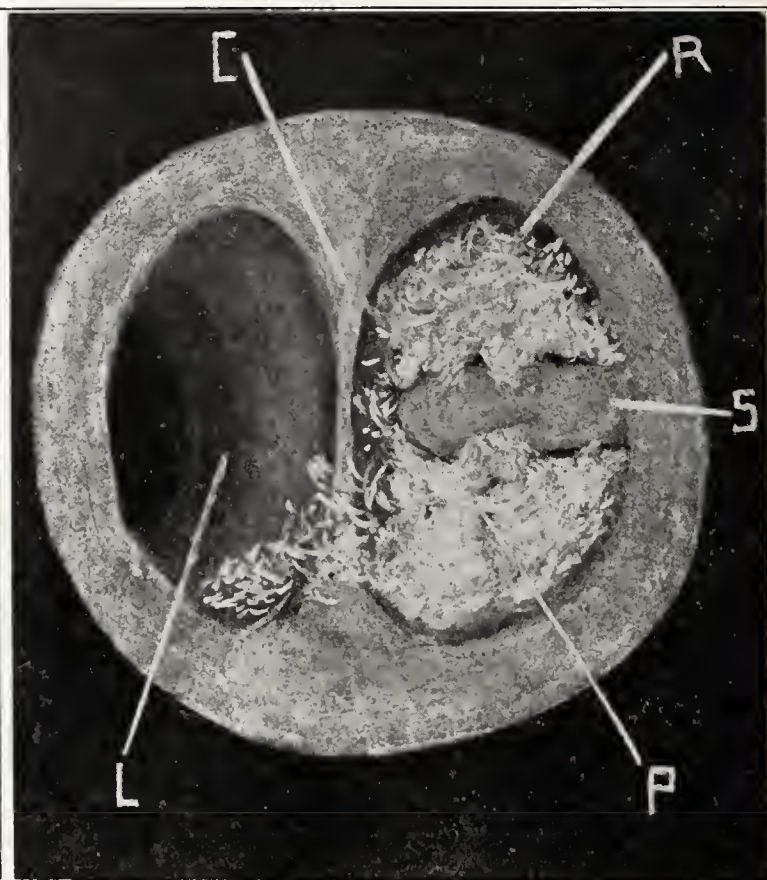


Fig. 10.—Sketch of bronchoscopic view of watermelon seed in right main bronchus. Extensive secondary changes have not occurred. S—Watermelon seed. R—Right main bronchus. P—Foamy secretion accumulated above and below the seed and spilling over across the carina (C) into the left main bronchus (L). This "internal drainage" of secretion into the left bronchus accounts for the abnormal physical findings on the left side. The pus was removed by bronchoscopic suction and the foreign body was then withdrawn. Patient made a complete recovery, and the x-ray picture returned to normal.

deeper imbedding of the point, or an actual perforation, and may be followed by a mediastinal pneumothorax, mediastinitis, and death. To avoid these dangers the sharp point should be dislodged from its position in the bronchial wall and turned with rotating forceps or with the tip of the bronchoscope. If this maneuver is successful, the sharp point will be so turned as to permit removal with the slightest amount of trauma. When the

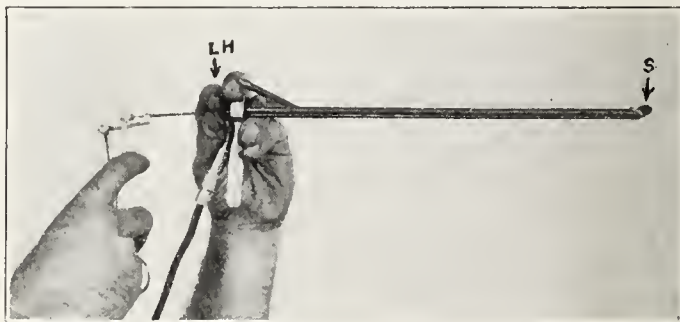


Fig. 11.—Technique of foreign body removal. (So that photograph might be clearer, gloves were not used.) The watermelon seed (S) is too large to be withdrawn through the bronchoscope. The seed has been grasped with forceps and pulled to the tip of the bronchoscope. The right hand maintains the forceps grasp on the foreign body. Note the position of the left hand (LH) holding the forceps and bronchoscope fixed together so as to permit the withdrawal of the seed, bronchoscope, and forceps by a single maneuver. The foreign body must be so turned during its extraction that its long axis is in the antero-posterior plane while passing through the glottic chink. This precaution will prevent the vocal cords from dislodging the foreign body from the forceps and at the same time will prevent trauma to the laryngeal structures.



Fig. 12.—Watermelon seed removed from right main bronchus.

sharp end of the foreign body is pointing upward, occasionally the lumen of the bronchoscope can be slipped down over this exposed point so as to ensheath it. The sheathed point then can be grasped and the foreign body safely withdrawn. When a large object has three or more sharp edges (such as a tin toy) it may be impossible to cover all the points. It is advisable to remove such objects with round rotating forceps which allow the foreign body a certain amount of play and freedom of movement during the withdrawal. This minimizes the possibility of trauma. The usual anteroposterior rotation should be made for safe passage through the larynx, and a lateral rotation should be done to avoid injury to the pharynx.

Nails and tacks are sometimes wedged tightly into the bronchus with the head uppermost, so that no space remains between the foreign body and the bronchial wall for the insertion of the forceps. In such instances one must take advantage of the respiratory changes in the size of the bronchial lumen in order to remove the foreign body. Bronchoscopic examinations have shown that the bronchi elongate and widen with inspiration, but shorten and narrow on expiration. As

these changes permit the object to be drawn deeper into the bronchus on inspiration and forced slightly upward on expiration, the grasping forceps are to be inserted and opened during the inspiratory phase and the foreign body is to be grasped during the expiratory phase. In cases of tight impaction this dislodgment must be done slowly and carefully.

Late Cases.—Secondary changes which occur from the prolonged stay of a foreign body usually will be much more marked in the case of organic objects (such as seeds and peanuts) than inorganic ones (nails, pins, and tacks) (Fig. 13). The reaction in the case of an organic foreign body is caused by the irritating decomposition products from these substances. These lead to an inflammatory edema of the bronchial mucous membrane which ultimately results in the formation of granulation tissue, bronchial occlusion, lung abscess, pulmonary gangrene, and bronchiectasis. Empyema, pyopneumothorax, or metastatic brain abscess may also follow. This sequence of unfavorable events is the result of delayed treatment.

Those patients in whom pulmonary suppuration has been present but a short time may expect a cure as soon as the foreign body is removed and adequate intrabronchial drainage is established. In others, several bronchoscopic treatments will be necessary even after removal of the foreign body (Fig. 14). The number and frequency of these latter bronchoscopic treatments are to be based on the persistence of symptoms, signs, and abnormal x-ray shadows. It has been our experience that lung suppurations of long standing do not clear up after simple bronchoscopic removal of the foreign body. In these patients chronic and permanent changes have taken place within the lung, and the treatment must be the same as that employed for other

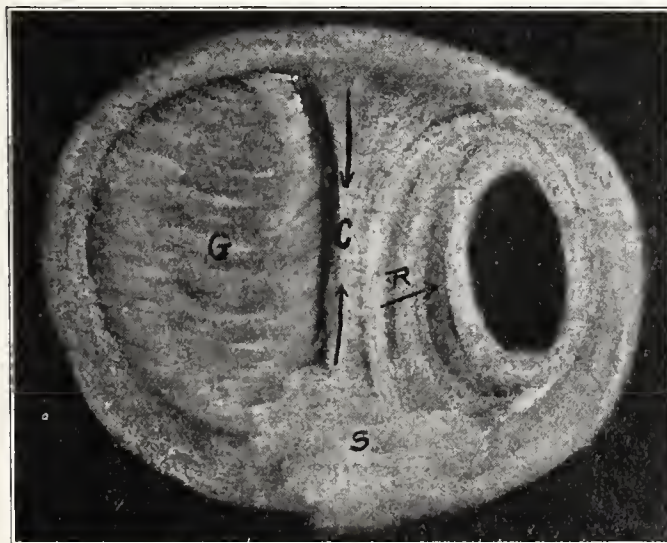


Fig. 13.—Bronchoscopic view. In a child who had aspirated a peanut nineteen days before examination. Severe secondary inflammatory changes have taken place. G—Succulent edematous granulation tissue occluding the entire left main bronchial opening. The diseased area was treated through the bronchoscope and the patency of the left main bronchus was re-established. R—Right main bronchus. Note the bronchial rings and wide-open lumen on this side. C—Carina, bifurcation of the trachea. S—Secretion from the diseased area, collected at the base of the carina (C) on the floor of the trachea.

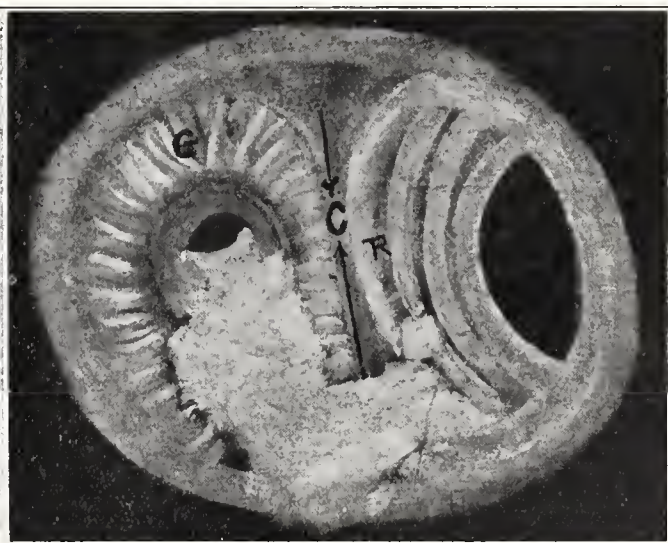


Fig. 14.—Bronchoscopic view. In the same patient as Fig. 13 four days later. G—Rim of granulation tissue encircling the left main bronchus. This bronchus is no longer completely occluded. Pus is seen pouring out of the left main bronchus, across the carina (C) and down into the right main bronchus (R). The pus was removed by bronchoscopic aspiration, and the left main bronchus was treated with 1:1000 adrenalin, 10 per cent cocain, and 4 per cent silver nitrate solution. This patient made a complete recovery.

chronic pulmonary suppurations: frequent bronchoscopies, postural drainage, artificial pneumothorax, phrenic nerve avulsion, and possibly open thoracic surgical procedures.

COMMENT

The serious complications which follow the aspiration of a foreign body are usually the result of delayed treatment and most likely could have been prevented by prompt bronchoscopic removal of the foreign body. Rapid strides have been made in recent years in the diagnosis and mechanical removal of foreign bodies from the trachea and bronchi, and in trained hands bronchoscopy has become a safe and an established procedure.

SUMMARY

1. The history of aspiration of a foreign body is too important to be overlooked even though other evidence of a foreign body is wanting.

2. The symptoms and signs in patients with intrabronchial foreign bodies are dependent on the positions of the foreign bodies and on the types of bronchial occlusion which follow.

3. Metallic foreign bodies are readily visualized on roentgenograms, but the x-ray diagnosis of nonopaque objects is made on the basis of obstructive emphysema or obstructive atelectasis.

4. Foreign bodies may be present within the bronchus even though the x-ray plates appear normal. Such patients require bronchoscopy for diagnosis as well as for treatment.

5. Intrabronchial foreign bodies should be removed immediately because delay may lead to the development of pulmonary abscess, bronchiectasis, or even to the death of the patient.

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DISCUSSION

MAURICE LEOPOLD LUBIN, M. D. (University of California Hospital, San Francisco).—The diagnosis of foreign bodies in the tracheobronchial tree is missed occasionally because of the failure to recognize the possibility of the condition. It is surprising how frequently, in both children and adults, foreign bodies are found in the bronchi in the absence of a clear-cut history of aspiration. When confronted with such negative histories, we should always be more cautious in our examination of these patients. Often we have been called to examine a child with a previous diagnosis of spasmodic croup, diphtheria, pneumonia, or asthma, only to discover a foreign body in the respiratory tract.

The diagnosis is obviously more certain when the intrabronchial invader has produced a complete bronchial occlusion. The chest examination in such cases reveals either an obstructive atelectasis or an obstructive emphysema on the involved side. In addition, the heart and mediastinal structures usually are displaced. A displaced cardiac border is a valuable sign when present, but I feel that it is frequently overlooked because too much attention is focused upon the lungs during the examination.

Occasionally we meet with patients who have aspirated a nonopaque object such as a watermelon seed,

cockle bur, peanut, or kernel of corn, and who have not a complete occlusion of a bronchus. It is in such cases that a bronchoscopic examination is necessary to establish the diagnosis.

As emphasized by Doctor Faulkner, delay in removing a foreign body occasionally converts an already serious condition into one having alarming consequences. When a foreign body has lodged in a bronchus for a month or longer, the organized granulation tissue and general inflammatory reaction at the site of the impaction makes the removal extremely difficult and hazardous. If a bronchus has been occluded in such a manner, a bronchostenosis may occur at the site of the occlusion and a bronchiectasis or pulmonary abscess may ensue. It is, therefore, of paramount importance that the foreign body be extracted as soon after its aspiration as possible.

My experiences confirm those of the writer as to the spilling of secretions from place to place within the tracheobronchial tree. This spilling and the areas affected by it are in most instances influenced by the posture of the patient.



SIMON JESBERG, M. D. (500 South Lucas Avenue, Los Angeles).—Doctor Faulkner has lucidly presented his subject. The general plan outlined is practical and if faithfully followed a foreign body of the air passages could hardly be overlooked.

It cannot be too strongly emphasized that atypical respiratory symptoms are, too frequently, not considered as due to a foreign body; the diagnosis of pneumonia fully satisfying the doctor, as well as the records in the Bureau of Vital Statistics when the little patient is laid to rest still carrying his unsuspected foreign body. I am fully convinced that an incorrect diagnosis occurs many more times than we think and base that opinion upon numerous patients supposed to have pneumonia in whom a foreign body was located.

It is surprising the stubborn resistance of some pediatricians and others to consideration of the possibility of a foreign body unless a well established history of its entrance has been secured. On the other hand, having been given a history of a possible foreign body, reference of the case to the man who is the expert in such matters is not common and many futile efforts are made to remove a foreign body that does not exist. The solution of this problem would be simplified if a patient were brought to the bronchoscopist when the history or symptoms indicate the possibility of a foreign body. The details of diagnosis would be directed then in an expert manner and fewer mistakes would be made.

Diagnosis by x-ray rarely fails if properly used. However, many competent roentgenologists are not familiar with the detailed technique in this work and do not realize that nonopaque foreign bodies can be recognized and localized by the x-ray.

There is rarely great urgency to remove the foreign body. Time and calm consideration should be given to the diagnosis and equipment rather than to its hurried removal. The only immediately dangerous foreign body is one impinged in the larynx, or loose in the trachea and likely to become impinged in the larynx. If suffocation from such a foreign body is imminent a tracheotomy is indicated, after which the foreign body can be removed at leisure.

Obstructive atelectasis due to a foreign body is a comparatively rare occurrence. Obstructive emphysema or air-trapping is much more common.

Lung suppurations due to long retained foreign bodies in my experience have differed from those mentioned by Doctor Faulkner. Even after extensive lung suppuration and destruction, the process has cleared after removal of the foreign body. It is true that in some cases, bronchoscopic drainage and treatment of granulations has been required, but in most the symptoms cleared up spontaneously.

FLAGELLATE TRICHOMONAS HOMINIS IN THE RABBIT—ITS PATHOGENICITY*

REPORT OF AN INSTANCE OF INFESTATION IN MAN, WITH NECROPSY FINDINGS

REPORT OF CASE

By FRANKLIN R. NUZUM, M. D.
ALBERT H. ELLIOT, M. D.

AND

BLANCHE V. PRIEST, A. B.
Santa Barbara

DISCUSSION by Herbert Gunn, M. D., San Francisco;
John F. Kessel, M. D., Los Angeles.

THE rôle of the intestinal parasite, *Trichomonas hominis*, in the etiology of disease in man is uncertain. As this flagellate is found in the stools of many apparently healthy persons, as well as of those complaining of a diversity of symptoms, a determination of its pathogenicity is important.

COMMENTS ON THE LITERATURE

Infestation by this parasite has been reported from many parts of the world. Although Kofoed,¹ as a result of his research in the DeBarkation Hospital in New York City, believes that the eastern Mediterranean region is a source of infection, and that trichomonas is the least frequent of the common flagellates infesting man in other localities, the results of other observers tend to dispute this. In South America, Escomel² reported 152 instances observed during one year in Peru alone. Parodi³ in the Argentine found more than fifty instances in the examination of 1071 persons. Wenyon and O'Connor,⁴ examining English soldiers of the Egyptian Expeditionary Forces, reported twelve instances. In the temperate zone, Smithies⁵ reported an incidence of two per cent infestation with *Trichomonas hominis* in 3780 persons; Kofoed,⁶ an incidence of 1.1 per cent in approximately 8000 individuals. The highest figure of 22 per cent is given by Sistrunk⁷ in a series of 145 patients. In the United States, instances of infestation with this flagellate have been reported from various sections. Freund¹ discusses ten instances found in Detroit in 1908. Lynch⁸ mentions instances from South Carolina and Texas. Barrow⁹ (Los Angeles) in 1924 found ninety-seven instances of trichomonas infestation in the examination of 725 persons. Sistrunk concluded that, contrary to the popular opinion, intestinal protozoa are not confined to the South, but are often found in the stools of persons who have never resided there.

SYMPTOMS

There is a difference of opinion regarding the symptomatology of trichomonas infestation. Some observers (Gunn¹⁰ and Minchin¹¹) express the belief that the affection is symptomless. However, weakness, lassitude, anemia, vague ab-

dominal pains, flatulence, backache, insomnia, headache, etc., are frequently mentioned. The uncertainty attending this subject is best exemplified by the opinions expressed regarding the most frequently recorded symptom—diarrhea. That its occurrence is frequent is the belief of Chandler, Smithies,¹² Coutant, Hinkleman, Lynch, and Escomel.¹³ Freund¹ reported ten patients from Dock's clinic suffering from chronic diarrhea with trichomonas present in the stools. He defends the pathogenicity of this flagellate, and the clinical entity of the disease, trichomoniasis. Head¹⁴ has found numerous instances of diarrhea associated with trichomoniasis. Sistrunk⁷ reported thirty-two instances of *Trichomonas hominis* infestation associated with diarrhea. Kofoed¹⁵ also states that diarrhea may be caused by this organism. He believes, however, that the severe symptoms attending trichomonas infestation as reported by Alvarez (Columbia), Varezza (Argentina), and Escomel (Peru), might in reality be caused by Pentatrachomonas (an organism having one more flagella than the *Trichomonas hominis*).

There are others of the opinion that constipation is an important symptom. Bonthius¹⁰ found that of seventy-four patients infested with one or more forms of intestinal protozoa, including *Trichomonas hominis*, seventy-one gave a history of constipation. Lopes,¹⁶ quoting Loper, gives constipation as one of a group of symptoms in the "dyspeptic syndrome" of trichomonas infestation. Tsuchiya¹⁷ found that in twenty patients carefully studied, diarrhea was not present. On the contrary, constipation was frequent.

PATHOGENICITY

Various attempts have been made clinically and experimentally to demonstrate the pathogenicity of *Trichomonas hominis*. Having gained access to the body, the organism inhabits the large bowel. Barrow⁹ reports that hemorrhoids, abdominal tumors, intestinal adhesions, cecal pockets, diseased appendices and gall bladders, etc., may serve as incubators. It has been claimed that the flagellate can penetrate the intestinal walls, gaining access to the blood stream. Plimmer¹⁸ has isolated it from the blood of batrachians and reptiles in the London Zoölogical Gardens. Pentimalli¹⁹ obtained positive blood cultures from two patients; Hinkleman,²⁰ from one.

The opinions expressed and the evidence regarding the ability of trichomonas to invade the tissues of man may be summarized as follows: Chace and Tasker²¹ and Haughwout¹¹ state that the organism never penetrates the intestinal wall. Musgrave,²² Lopes,¹⁶ and others believe that the organism can aggravate intestinal lesions already present. Coutant¹³ encountered a large number of trichomonads in the microscopic examination of mucus obtained from an erosion in the rectum of a patient with trichomonas diarrhea. Soper²³ reports that in some instances of infestation small linear ulcers about the diameter of a hair abound in the rectal mucosa, as revealed by the proctoscope.

* From the laboratories of the Cottage Hospital, Santa Barbara.

* Read before the Pathology and Bacteriology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

We have found one report in the literature regarding the necropsy findings in an instance of trichomonas infestation. Our survey of the literature included the abstracting of fifty-two articles in four languages dealing with *Trichomonas hominis* or closely related organisms. Death in the above instance was due to aortic insufficiency and arteriosclerosis of the kidneys. There was a diffuse pseudomembranous colitis extending from the ileocecal valve to the rectum. Actual tissue invasion was not mentioned.²⁴

Animal Experimentation.—Animal experimentation has failed to elucidate the question of pathogenicity. In some instances tissue invasion appears to have occurred, but since flagellates are often indigenous to the experimental animal used, the utmost caution is necessary in the interpretation of results. Stevenson, according to Haughwout,¹¹ obtained sections from the cecum of a mouse showing definite lesions of the mucosal surface invaded by numerous trichomonads. Hadley²⁵ found the trichomonas with which he worked penetrating the intestinal walls of a turkey. Many organisms were present in the crypts of Lieberkuhn, and from there had penetrated into the muscular layers. Since the relationship of the flagellates commonly present in mice and poultry to *Trichomonas hominis* is still undetermined, these observations are of doubtful value.

Animal inoculation experiments have been tried with various members of the flagellate group. The most important are those of Hogue,²⁶ who gave a series of kittens cultures of *Trichomonas hominis* orally and by rectal instillation. Stool examinations over a period of at least a week following the inoculations failed to disclose the organism. Negative results were also obtained with two rabbits, using the rectal route of implantation. In this instance a flagellate indigenous to the rabbit was found, but careful observation of morphology demonstrated that it was not the *Trichomonas hominis*.

We have attempted to prove the pathogenicity of *Trichomonas hominis* in experimental animals, to note any characteristic pathologic changes, and to recover the organism from the affected tissues. In our experiments eleven rabbits were used for inoculation, and twenty-four for controls. The material for inoculation was obtained from the freshly passed stools of a patient with a well-marked trichomonas infestation.

The first rabbit was given, by stomach tube, the supernatant fluid from a mixture of feces and 0.85 per cent salt solution. This contained numbers of active flagellates. On the fourth day the animal's stools appeared darker than those of the control group, but since flagellates could not be found, the dose was repeated in two weeks and again in four. At autopsy four days later, no organisms could be recovered.

In the next experiment, two feedings, a week apart, of fresh *Trichomonas*-containing feces and barley were given to two rabbits after a preliminary short starvation period. One month later the organism appeared in the stools of both. At postmortem examination, two and four months respectively after the original inoculation, *Trichomonas hominis* flagellates

were isolated from material obtained from the appendix and cecum of each animal.

Two other groups, of four rabbits each, were then treated in a similar way. The first group received two doses at a six-day interval; the second, a dose on the fifth and on the ninth day after the original inoculation. The stools soon became dark or mucus-coated, but the organism was not found. At autopsy, six weeks after the beginning of the experiment, *Trichomonas hominis* flagellates were isolated from the cecal material and appendix in each instance. In the second group the rabbit flagellate was also found, confirming us in our opinion that we had been successfully differentiating between the two types of organism. Since the rabbit flagellate is often present, it might have proved a source of confusion.

Pathologic examination demonstrated the presence of numerous superficial ulcers, about one millimeter in diameter, limited entirely to the rectum, occurring twice in the experimental animals, and four times in the controls. The other organs were grossly normal. Microscopic examination of sections made from the large bowel, the appendix, and the gall bladder of each animal failed to disclose in a single instance tissue invasion by the flagellates.

REPORT OF CASE

We have observed one patient with a *Trichomonas hominis* infestation on whom we later made a necropsy examination.

J. G., a white boy, age two years and ten months, entered the Cottage Hospital on the service of Dr. Hilmar Koefod on November 5, 1920. He had spent a good part of his life in Texas. When sixteen months of age, he had had dysentery with blood and mucus in the stools, and a fever ranging between 101 and 103 degrees Fahrenheit for a period of two weeks. Eight months later he had fever and vomited for ten days, and since that time had been constipated and generally below par. On hospital entrance he complained of weakness, fever, and constipation. He appeared very pale and underweight. The heart was enlarged, and an apical systolic murmur was present. The spleen was palpable. The blood showed a pronounced secondary anemia, the hemoglobin being 40 per cent (Dare), and the erythrocytes numbering 1,630,000 per cubic millimeter. The leukocyte count was 3600 per cubic millimeter, of which the small lymphocytes composed 85 per cent, the neutrophilic polynuclears 8 per cent, the large lymphocytes 6 per cent, and the large mononuclears 1 per cent. The laboratory reported, on several examinations, the presence of *Trichomonas hominis* organisms in great numbers in the stools. His stay in the hospital was characterized by numerous periods of pyrexia, but he was at length discharged as improved on January 26, 1920.

He reentered the hospital on March 20, 1920. At this time he was acutely ill, pallid, and lethargic. Pus was draining from each middle ear. The tonsils were infected, and the cervical lymph glands were enlarged. No further change was noted regarding the heart. The liver was down to the iliac crest on the right. The spleen was barely palpable. A few petechiae were scattered over the abdomen. The blood picture was essentially the same as previously, except for the presence of an occasional eosinophil (one per cent) in the stained smear. The urine contained a trace of albumin, but no casts or blood cells. *Trichomonas hominis* was again found in the stools.

The clinical diagnosis was septicemia, secondary anemia, chronic tonsillitis, otitis media, and *Trichomonas hominis* infestation. Death ensued on April 7, 1920.

Necropsy.—The anatomic diagnoses were petechial hemorrhages in the lungs, heart, stomach, small and

large bowel, urinary bladder, kidney pelves, and peritoneum; chronic parenchymatous nephritis; generalized cardiac enlargement and left ventricular hypertrophy; infected tonsils and hyperplastic cervical lymph glands; fatty change of the liver; and passive congestion of the spleen. Culture of the heart's blood and bile was positive for *B. coli*. Cultures of the pericardial fluid remained sterile.

The serous coat of the large bowel was covered with small areas of a brownish-pink color showing neither elevation nor erosion. These lesions differed in appearance from the petechiae in other organs, consequently it was felt that they might represent another pathologic picture, perhaps due to the presence of *Trichomonas hominis*.

Microscopic examination of the gall bladder and small bowel gave no evidence of tissue invasion of these organs by the flagellate. Microscopic sections cut through the lesions in the large bowel were also made. Dr. J. V. Barrow and Dr. A. Bonthius kindly consented to study them. They could not find that a single flagellate had penetrated into the bowel wall.

Evaluation of Findings.—In attempting to evaluate our experimental and pathologic findings, it must be remembered that we are considering a parasite and not a bacterium. Parasites commonly cause disease, not through cell invasion and toxin formation, as do bacteria, but rather through appropriating for their own use the energy income of the host, through opening the avenues to secondary bacterial invasion and through mechanical difficulties due to their presence in the tissues. Furthermore, the parasite may well be a secondary invader in its turn. In other words, the organism may have no pathogenicity in the true sense, and the symptoms resulting from nutritional disturbance may often be explained on another basis. Conversely, Koch's postulates cannot be applied with such aptness in attempting to prove that a parasite organism is invariably the cause of a certain disease, as they can with bacteria. Under such circumstances the best we can do is to demonstrate a constancy of relationship between the presence of a parasitic organism and a typical pathologic lesion.

In considering our rabbit experiments, we can say that we did obtain an infestation of the animals by *Trichomonas hominis*. Hogue, using a similar technique, as previously noted, was unsuccessful, and is of the opinion that most workers confuse the organism with which they work with that often indigenous to the animal used. By careful attention to morphologic detail we feel that we have eliminated this source of error. Granting, then, that our animals were "infected," we might hope to find a constancy of pathologic lesion, and to demonstrate the organism in that lesion. In this we were entirely unsuccessful. There was no evidence that the organism has the ability to invade the tissues of the rabbit.

Likewise, in our patient who had a heavy infestation, although we found lesions in the large bowel differing from those in other organs, we are not justified in concluding that *Trichomonas hominis* was the cause of those lesions.

CONCLUSIONS

We are forced to conclude from our experiments that *Trichomonas hominis* is not patho-

genic in the rabbit. Careful study of our patient who came to necropsy warrants us in reporting the absence of any evidence of tissue invasion.

Santa Barbara Cottage Hospital.

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DISCUSSION

HERBERT GUNN, M. D. (2000 Van Ness Avenue, San Francisco).—There has been considerable interest during the past few years in the subject of flagellate infections, and *Trichomonas hominis* has come in for its share. The authors of this paper have considered the topic from a broad standpoint and have endeavored to throw light on it from various angles. Their observations constitute a valuable contribution to our knowledge of the subject.

Trichomonas hominis is recognized as being of world-wide distribution. There is some discussion as to the varieties of trichomonas based on the number of flagella that are found, but classifications changing the species have not been generally accepted. There has been considerable discussion for a number of years over the pathogenicity of this parasite. All sorts of symptoms have been ascribed to it, but much that has been written on the subject proves valueless upon critical consideration.

As stated by the authors, diarrhea is the most frequently recorded symptom. This is quite natural as the parasite is never seen in the formed stool, and as no cysts are produced its presence cannot be determined unless the stool is soft or liquid. The authors also quote several observers who state that in their experience constipation is the most prominent symptom. The fact of the matter is that the finding of *Trichomonas hominis* in the stool depends very largely on the character of stools examined. If the patients present symptoms of dysentery or diarrhea, trichom-

onas will be encountered in a certain percentage. If formed stools are examined it will not be encountered at all. If a laxative is administered to persons having a normal formed stool or suffering from constipation trichomonas will be found with probably as great frequency as in the diarrhea cases. For a number of years it has been my practice to examine in every case a warm liquid stool in addition to formed stools, and the results of these examinations has led me to conclude that the incidence of trichomonas infection has very little connection with any symptoms. I have also had the opportunity of observing a number of persons who harbored trichomonas for long periods after they had received treatment for various conditions, and in none of these were there symptoms which could be definitely ascribed to this parasite.

The findings of Doctor Nuzum and his colleagues in their animal inoculations and their autopsies would tend to strengthen my belief in the nonpathogenicity of *Trichomonas hominis*.

✽

JOHN F. KESSEL, M. D. (Los Angeles County General Hospital, Los Angeles).—The question of the pathogenicity of the intestinal flagellates is one about which considerable speculation has occurred in the past, but one concerning which very few exact experimental data have been procured. Most opinions that have been expressed thus far have been formed merely from clinical observations without adequate experimental studies in pathology in which the bacteriologic and protozoölogic aspects of the subject have been considered.

The present study is an attempt in the right direction, but the conclusions should not be taken as final. In the light of personal experience with this same general subject, I should like to make the following suggestions. First, the rabbit is an unfortunate animal for the authors to have selected for the present study on account of its restricted diet, and because its intestinal tract is often naturally infested with other flagellates, for example, *Chilomastix cuniculi* and *Eutrichomastix*. The authors mention the possibility of confusing *Trichomonas hominis* with these flagellates, and in their minds have successfully differentiated them from *Trichomonas hominis* of man. However, they have not given adequate description of the flagellates which they encountered, nor have they presented sufficient data concerning their methods of isolation and cultures of the protozoön, nor of the isolation and feeding methods employed with their experimental animals to convince the critical reader that they were not dealing with natural flagellate infestations of the rabbit. Experiments of this type to be of value must be carried on under strict isolation conditions and the food given must be sterilized. Such precautions should be taken in order to eliminate the possibility of experimental animals acquiring natural infections during the period of the experiment.

Second: In the review of the literature the authors fail to mention Wenyon's case in which he found invasion of trichomonas into the mucosa of the human intestine. They might also have referred to recent publications by the reviewer in which, first, *Trichomonas hominis* was found in conjunction with amebae in the pus from amebic liver abscess observed in Korea, and second, a series of experimental kittens in which both diphtheritic colitis and invasion of the flagellates into the intestinal mucosa were apparent.

Third: The case history presented by the authors was so complicated by other factors that it was a most unfortunate case to use in illustrating trichomonas infestation.

In order to study this subject adequately a further series of autopsy reports on patients found to be positive for *Trichomonas hominis* should be observed. Where positive pathology is present, protozoa other than trichomonas and pathogenic bacteria and fungi must be ruled out of the picture. Only when this is

done, and when further careful experiments and clinical data are collected, will it be possible to answer the question raised by the writers.

✽

FRANKLIN R. NUZUM (Closing).—In answer to the questions raised by Doctor Kessel as to our experimental technique, we attempted to recognize, and eliminate so far as possible, sources of confusion and error. The animals were first carefully studied to determine the presence or absence of indigenous flagellates and their morphologic characteristics. During the experimental period the rabbits were isolated in single wire cages. They were fed steam-rolled barley and dried alfalfa, which could not have been purveyors of *Trichomonas* organisms. They drank city tap water, which, on numerous examination of centrifuged specimens, was found not to contain flagellates.

For the identification of the organism, microscopic examination of normal saline smears of fresh intestinal contents proved the most satisfactory. In such preparations *Chilomastix cuniculi* is distinguished by a whirling disk movement, and three loosely spread flagellae trailing along one side of the organism in an almost parallel plane. *Trichomonas*, on the other hand, as aptly described by Davaine, "swings like the bob of a pendulum on its shaft," and an undulatory movement is apparent outside of the contour proper of the organism. Furthermore, trichomonas has a well-marked cystostome and axostyle which serve as another point of differentiation between it and chilomastix. In addition to fresh preparations, we studied the organisms as stained by iron-alum-hemotoxin, and by nigrosin. With the latter, the four anterior flagellae of *Trichomonas hominis* readily differentiate it from the three flagellated chilomastix. The organisms were not cultured.

We feel that the results of the experimental investigation of this problem, while not conclusive, are in confirmation of the clinical impression that *Trichomonas hominis*, at least in most instances, is nonpathogenic for man. Since, to the best of our knowledge, persons do not die of trichomonas infestation, autopsy material must of necessity be complicated by other factors. Nevertheless the careful study of such material offers the best approach to the final solution of the question.

ACNE*

A STATISTICAL STUDY OF POSSIBLE RELATED CAUSES

By RUBY L. CUNNINGHAM, M. D.

AND

C. J. LUNSFORD, M. D.

Berkeley

DISCUSSION by Ernest Dwight Chipman, M. D., San Francisco; Norman N. Epstein, M. D., San Francisco; Stanley O. Chambers, M. D., Los Angeles.

GILCHRIST in 1902 found the *Bacillus acne* in pure culture in many lesions of acne and present in all lesions. Since that time it has been generally recognized that the *Bacillus acne* is the primary cause of acne vulgaris; however, it has been many times stated that there are a number of predisposing factors or causes contributing to the presence of acne lesions, such as improper food, constipation, abnormal menstruation in women, endocrine disturbance, and foci of infection.

* Read before the Dermatology and Syphilology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

TABLE 1.—*The Distribution of Acne in the Age Groups 15 to 24 and 25 to 34 Years.*

Age Group	Face		Chest		Back		Total
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
15 to 24 years	1117	10.0	1334	12.0	2085	18.8	11104
25 to 34 years	120	8.4	123	8.6	213	14.9	1426
15 to 34 years	1237	9.8	1457	11.6	2298	18.3	12530

MATERIAL FOR THIS STUDY

Since the literature contains few available statistics either in support of, or contrary to such impressions, a careful study of several thousand cases of acne might prove valuable in disposing of, or in supporting these opinions. The material for this study was taken from the records of the physical examinations of young women entering the University of California at Berkeley. At first 12,530 such records were utilized. Of these, 2974, or 23.7 per cent, were of students who had acne. The handling of the remainder, 9556, as controls proved too laborious, so 3185 patients without acne were selected to serve as comparison with the 2974 patients with acne.

25 to 34 year age group (Table 1). The differences in the percentages vary from 1.6 per cent for acne of the face to 3.9 per cent for acne of the back.

The number of young women having acne of the back is greater than the number having acne of the chest; and this in turn is greater than the number having acne of the face (Table 1).

To be able to make a judgment of the effect of nutrition on the incidence of acne, the individuals studied were classified according to their weight deviations from the standards of the insurance actuarial tables (Table 2). There are approximately the same percentages of those with, and those without, acne in corresponding weight vari-

TABLE 2.—*Comparative Weight Correction of the Acne Present and Acne Not Present Groups.*

Weight Correction	Acne Present		Acne Not Present	
	No.	Per Cent	No.	Per Cent
-40 to -59 pounds	3	.1	4	.01
-20 to -39 pounds	247	9.4	301	10.0
0 to -19 pounds	1347	51.5	1485	49.5
No weight correction	86	3.3	133	4.4
0 to +19 pounds	747	28.6	834	27.8
+20 to +39 pounds	123	4.7	182	6.1
+40 to +59 pounds	47	1.8	39	1.3
+60 pounds and over	14	.5	16	.41
Total	2614	98.7	2994	99.9

CLASSIFICATIONS IN THIS STUDY

The group of those with acne was classified from the standpoints of: (1) age; (2) incidence of the lesions on the back, chest, and face; (3) weight correction; (4) complexion; (5) menstrual history; (6) history of related conditions, such as constipation, headache, boils, colds, appendicitis, and tonsillitis; (7) conditions of the thyroid gland; (8) conditions of the nose; (9) conditions of the tonsils; and (10) conditions of the eyes.

Age is a factor in acne frequency, since the characteristic skin lesions are more frequently found in the 15 to 24 year age group than in the

ation groups. The state of nutrition as expressed by weight variation seems to have no influence on the development of acne.

Complexion does not seem to be a very influential factor in the incidence of acne (Table 3). The differences in percentages are too small to have statistical value, but suggest that distinct blonds and brunettes have slightly better chances of escaping acne than do demiblonde.

The relation of acne to the menstrual history is of special interest (Table 4). The duration of flow has no relation to the presence or absence of acne in the cases studied. There seems to be no relationship between the age of onset of men-

TABLE 3.—*The Numbers and Percentages of Those with Various Complexions With and Without Acne.*

Complexion	Acne Present		Acne Not Present	
	No.	Per Cent	No.	Per Cent
Blond	495	17.3	1796	19.3
Demiblonde	1468	51.4	4471	48.1
Brunette	886	31.1	3033	32.6
Total	2849	99.8	9300	100.0

TABLE 4.—Comparisons of the Menstrual Histories of Young Women With and Without Acne.

Days of Duration	Acne Present		Acne Not Present	
	No.	Per Cent	No.	Per Cent
1 to 2 (inclusive)	29	0.6	58	1.1
3 to 5 (inclusive)	2098	75.9	2400	76.6
6 to 9 (inclusive)	644	23.1	691	22.8
Total	2771	99.6	3149	100.5
Age of Appearance				
10 to 12	728	26.7	848	26.9
13 to 15	1923	69.5	2143	68.1
16 to 19	115	4.1	152	4.7
Total	2766	100.3	3143	99.7
History of Pain				
No pain	1599	55.4	1625	53.4
Slight pain	806	27.9	839	27.6
Severe pain	478	16.5	576	18.9
Total	2883	99.8	3040	99.9
Character of Menstruation				
Never menstruated	2	-----	2	-----
Irregular	418	14.4	437	14.3
Scanty	119	4.1	137	4.4
Profuse	212	7.3	224	7.3
Normal	2526	88.5	2695	88.1
Total	2857	99.9	3056	99.8

struation and the presence of acne at the time of the examination. Unfortunately, we have no figures correlating the onset of acne with the onset of the menses, or the prevalence of acne during various phases of the menstrual cycle. There seems to be no reciprocal dependence between the character of the menstrual period and the incidence of acne. Those with, and those without acne, have approximately equal chances of freedom from dysmenorrhea, irregularity, and scanty or profuse menstruation.

When students enter the University, a fairly extensive history is taken. From this the conditions which might be factors in the development of acne have been segregated and listed (Table 5). The striking fact brought out by this table is, that those with and without acne have had almost identical histories of constipation, appendicitis (with and without operation), headache, tuberculosis, and tonsillitis. Those without acne have slightly better chances of escaping boils, but slightly greater chances of having frequent colds than those with acne. Differences in percentages throughout this table are, however, so small as to be without great reliability.

In the condition of the thyroid gland is found the first real indication of a factor influencing

the development of acne (Table 6). A young girl with a normal thyroid has better chances of a clear skin than one with slight thyroid enlargement or other thyroid abnormality.

The possible influence of foci of infection on the amount of acne present may well be looked for in relations between nasal and throat conditions and acne incidence (Table 7). The arguments in favor of a causal relationship find some support in the fact that of those without acne, 68.6 per cent have normal noses, whereas of those with acne, only 66.1 per cent have normal noses; a difference of 2.5 per cent. The influence of the tonsil as a focus of infection is suggested, since pathological tonsils are found in 21 per cent of those without acne, and in 23.8 per cent of those with acne; a difference of 2.8 per cent.

Eye conditions, as expressed in the type of refraction error, are not correlated with the presence or absence of acne (Table 7).

COMMENT

Our object in this study has been to let the figures speak for themselves. The headings under which the comparisons are made were not designed for the purpose of the study, but were fixed by the nature of the examination required

TABLE 5.—Comparisons of the Histories of Groups of Young Women With and Without Acne.

	Acne Present		Acne Not Present	
	No.	Per Cent	No.	Per Cent
Boils	236	7.8	216	6.8
Constipation	286	9.6	298	9.4
Appendicitis, no operation	135	4.5	159	5.0
Appendicitis, with operation	217	7.3	238	7.5
Headache	385	12.9	441	13.9
Tuberculosis	29	.9	24	.7
Colds	162	5.4	205	6.4
Tonsillitis	846	28.4	926	29.2
Cervical adenitis (gland)	684	24.0	722	22.8
Total	2974		3170	

TABLE 6.—Thyroid Condition of Young Women With and Without Acne.

Condition of Thyroid	Acne Present		Acne Not Present	
	No.	Per Cent	No.	Per Cent
Normal	1968	70.6	2371	75.0
Enlarged (adolescent)	758	27.2	690	21.8
Miscellaneous	60	2.0	101	3.1
Total	2786		3161	

at entrance to the university. Had the material available permitted a study of acne cases as associated with seborrheic dermatitis, pelvic pathology other than as expressed in menstrual disorders, dietary habits, and foci of infection in teeth and sinuses, we feel that this study might have presented more positive findings.

The most outstanding impression received from a study of the available material is the striking similarity in the percentages of the findings in the two groups—those with and those without acne. That such conditions as extreme weight deviations, abnormal menstrual periods, dysfunction of the lower intestinal tract as expressed in the history of constipation, and of appendicitis have no influence on the appearance of acne seems surprising. On the other hand, the greater percentages of the abnormalities of the nose and of the tonsils in the patients with acne demand a more careful statistical study of the influence of foci of infection on the development of acne.

The attitude of those who pay particular attention to the condition of the thyroid gland in patients with acne vulgaris is given support from this study.

The usual textbook statement that the predominance of acne lesions occur on the face, is not substantiated by this study.

CONCLUSIONS

The following conclusions may be drawn from a study of the statistics used as the basis of this paper:

1. Acne lesions are found more frequently on the backs of young women than on their chests, and more frequently on their chests than on their faces.
2. More young women in the 15 to 24 year age group have acne than in the 25 to 34 year age group.
3. Nutrition, as expressed in weight deviation from a selected standard, is not a determining factor in acne incidence.
4. Complexion is without significant influence on the amount of acne present.
5. There is no relationship between the presence or absence of acne in the 15 to 34 year age group and such menstrual characteristics as age of beginning, duration, irregularity in interval, amount of pain, and amount of flow.
6. The history of boils, of constipation, appendicitis, and tonsillitis has no appreciable bearing on the incidence of acne.
7. Foci of infection in the nose and throat may favor the development of acne.
8. Thyroid enlargements are associated with a slight increase in acne incidence.

TABLE 7.—Comparison of the Conditions of the Nose, Tonsils, and Eyes of Young Women With and Without Acne.

Condition of Nose	Acne Present		Acne Not Present	
	No.	Per Cent	No.	Per Cent
Normal	1846	66.1	2187	68.6
Spur	221	7.9	268	8.4
Deviated septum	679	24.3	682	21.4
Chronic rhinitis	102	3.6	122	3.8
Total	2793		3185	
Condition of Tonsils				
Remnants	80	2.9	75	2.3
Normal	997	35.6	1095	34.4
Absent	798	28.5	1117	35.0
Buried	347	12.4	304	9.5
Projecting	45	1.6	38	1.2
Pathological	666	23.8	674	21.0
Total	2793		3185	
Condition of Eyes				
Vision normal	1482	53.2	1711	53.9
Far sighted	638	22.9	737	23.2
Near sighted	526	18.8	566	17.8
Astigmatism	509	18.2	526	16.5
Muscular difficulty	4	.....	1	.....
Total	2793		3185	

9. If we accept the theory that acne is due to an infection, this study would indicate that the infection is little influenced by systemic conditions.

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DISCUSSION

ERNEST DWIGHT CHIPMAN, M. D. (350 Post Street, San Francisco).—This excellent statistical presentation should do much to clear the atmosphere which has so persistently obscured the question of acne. One is reminded of the young man who left the home farm and wandered for many years in a vain hunt for fortune, only to find it in his own back yard when he returned. We in medicine, likewise, often go too far afield in search for that which lies near at hand.

The authors seem to assume that the acne bacillus is the exciting cause of acne and concern themselves with a consideration of possible contributing factors. Now the acne bacillus has never been proved to be the cause of acne, but fortunately, so far as treatment is concerned, its presence, whether causal or casual, does not appear to make any difference.

Reduced to lowest terms the situation seems to me about as follows. First of all, we are dealing with an adolescent with an oily skin. It is quite possible that endocrine influences have a bearing upon the oiliness, but no matter what causes it the excessive production or deficient distribution of oil is always the basis of a juvenile acne. It is, perhaps, quite rational to regard a certain degree of oiliness as a physiologic concomitant of adolescence and to look upon an excess as possibly pathologic.

Our problem is to facilitate the distribution or to lower the production rate of oil, since the retention of oil is the cause of the comedone and the comedone is the essential element of acne. We can help the distribution by the use of keratolytics and by thorough washings with soap and water. We can diminish the production rate of oil with x-rays.

In my observation both the original comedone formation and the secondary infection are often due to dirt. The average adolescent boy, from no matter what social sphere, is entirely undependable in the matter of ablutions, while the average adolescent female is much more handy with the compact than the cake of soap.

I cannot escape the feeling that, had the authors included a table separating those who use soap freely from those who do not, they would have had a positive finding. At any rate this paper should be of great service in keeping etiologic fortune hunters in their own yards.



NORMAN N. EPSTEIN, M. D. (Four Fifty Sutter Building, San Francisco).—There is little that one can add to the clear-cut statistical report concerning acne vulgaris among the young women attending the University of California, presented by the authors. They have had an excellent opportunity to compare the findings in a large group suffering with acne as compared with a large number who were free of acne lesions.

The striking similarity between the findings of the normal group and the group with acne is outstanding. In no single instance could it be definitely stated that some underlying constitutional disease predisposed to acne. From this, one cannot draw the conclusion that the general health is not important in the production of acne. Many patients have a definite history of exacerbation of their condition at the time of the menstrual period or when they are constipated or after overindulgence in candies and pastries. However, it is true that local treatment frequently is sufficient to completely eradicate the condition.

Acne vulgaris is one of the most common conditions which we have to treat. Although satisfactory results are obtained in the large majority of instances by our present methods of treatment, many cases are

very troublesome. Any work such as this which increases our knowledge of the disease is certainly very much worth while.



STANLEY O. CHAMBERS, M. D. (1260 Roosevelt Building, Los Angeles).—That the authors have effectively grasped an investigative opportunity is evident in this inclusive statistical review of acne vulgaris.

It is true that a few workers believe the acne bacillus to be the actual cause of the disease. The majority, however, do not accept this view, and it will require much more evidence before such proof is forthcoming. The association between the development of the acne lesion and the endocrine system, so frequently observed by the authors, to my mind stands as the real investigative approach to the disease. We thoroughly understand the pathologic mechanism by which the lesions develop, but we fail in the explanation of that which initiates this abnormal function.

Thyroid dysfunction is sufficiently concrete in its association with the disease to appear outstanding in such a statistical review. If the entire endocrine system was equally accessible to investigative study, we might better understand this basic mechanism.

It is such comprehensive reviews as presented by these authors that stimulate further study and help strengthen our theoretical conceptions.

SENSITIZATION IN SINUS DISEASE*

By SAMUEL H. HURWITZ, M. D.

San Francisco

DISCUSSION by William Palmer Lucas, M. D., San Francisco; J. A. Bacher, M. D., San Francisco.

RHINOLOGISTS agree that inflammatory affections of the nasal sinuses are in most instances bacterial in origin. Although the normal nasal chambers contain bacteria at all times, a healthy membrane can withstand invasion until some influence affects its powers of defense or lowers the general resistance of the body.

CAUSES OF SINUS DISEASE

There are a number of local causes which predispose to infection of the sinuses. Those most commonly mentioned by rhinologists are congenital or acquired nasal anomalies, foci of infection in the tonsils and teeth, and foreign bodies. Another very important cause of sinus disease is sensitization of the nasal mucous membranes to protein substances. This predisposing influence, although not infrequently mentioned of late in rhinologic literature, has not gained sufficiently the wide recognition to make it a factor in the management of these patients.

The air continually drawn through the nostrils contains not only bacteria, but the nasal mucous membrane provides contact by inhalation with substances in the form of dust. By far, the largest group of dust substances occurs with definite seasonal relation and is made up of various pollens. When the symptoms are perennial the cause may be in the form of air-borne substances, as dust, animal emanations, and vegetable powders, such as orris root, and wheat flour. Dusts play a very important part in causing nasal allergic reactions. House dust is composed princi-

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pally of particles of lint from cotton, materials from linen and wool used in floor coverings, bedding and clothing and many other substances such as glue from furniture, dander and hair of pet animals and bits of down or feathers from upholstering or pillows. Similarly occupational dusts contain the substances characteristic of the shop or factory from which they were obtained: bakery dust is chiefly wheat or rye flour; furrier's dust contains many fur particles and dye substances; and jeweler's dust contains a large percentage of box wood.

Although Eyermann¹ and other recent observers have shown that hypersensitive individuals may have nasal allergic reactions from the ingestion of foods to which they are sensitive, it is at present generally conceded that inhalants play by far the greatest rôle as sensitizing agents. Some years ago, Cooke,² whose experience with human sensitization is large, pointed out that in his series of over three hundred patients studied, about 70 per cent were due to substances that are conveyed in the form of dust and that act after absorption by the mucous membranes of the respiratory tract.

PREDISPOSITION TO SENSITIZATION

The number of individuals who have a predisposition to become sensitized is large. It has been estimated that from seven to ten per cent of the population of the United States, or approximately from seven to ten million persons, suffer from some allergic disease. Of these some one or two million have hay fever. Whereas it is possible that perfectly normal individuals may, by sufficiently long contact, occupational or otherwise, with powerful sensitizing substances of various kinds, acquire some form of nasal allergy, recent clinical studies have stressed the importance of hereditary predisposition in the development of nasal and other forms of allergic manifestations. Our present knowledge of this inherited tendency does not permit of a definite explanation for the development of this sensitivity more readily in certain individuals than in others. It is believed that the body cells of persons with an inherited predisposition possess this characteristic just as certain individuals inherit eyes and hair of a certain color. The fundamental inheritance transmitted from parents to offspring is not this or that particular form of sensitization, but the allergic constitution. It is difficult in the present state of our knowledge to define in terms of biologic changes in what way an individual with an allergic constitution differs from a normal person. Some of the characteristics of the allergic state which have been stressed by various students of this subject are hyperexcitability of the sympathetic nervous system and increased permeability of the skin and mucous membranes. This increased vulnerability of the skin and mucous membranes may offer an explanation for the readiness with which certain individuals become sensitized to allergic substances, which produce little or no effect upon the normal person.

THE RÔLE OF INFECTION AND SENSITIZATION IN SINUS DISEASE

It has long been recognized by rhinologists that infection of the maxillary, and more particularly of the ethmosphenoid group of sinuses, may give rise to a train of symptoms resembling hay fever. In these patients the nasal discharge may be watery at first, but sooner or later becomes mucopurulent or purulent. This change in the nature of the nasal discharge may be the first indication that the infection of the sinus membranes is primary and not grafted on an allergic condition. The development of the conception that a similar train of symptoms may be the result of a secondary infection of the nasal and sinus mucous membranes, showing allergic manifestations is quite new. It is of historical interest that Todd³ was among the first to emphasize this causal relationship between nasal allergy and chronic sinus infection in a paper entitled "Ethmoiditis as a Common Sequel (Never the Cause) of Pollinosis (Hay Fever)." Of this relationship he writes: "During each attack of hay fever, swelling of the turbinates takes place, causing defective drainage; secretion occurs, infection is added thereto and we have present during pollinosis, ethmoiditis and sometimes pansinusitis. The recovery of the sinusitis usually occurs when the pollen ceases to circulate in the air, but repeated attacks of pollinosis may result in a persistent lesion and thus the patient may develop chronic ethmoiditis, sphenoiditis, frontal sinusitis or pansinusitis, often accompanied by persistent swelling of the turbinates, and especially the middle turbinate."

During the eighteen years since the publication of Todd's paper considerable controversy has arisen between allergists and rhinologists in regard to the relative importance of infection and sensitization in the etiology of chronic sinus disease. Whereas many rhinologists accept the view of Todd that the nasal allergic state may be the primary cause of sinus infection, there are other excellent observers, among them Coates,⁴ who are equally strong in the conviction that infection in many instances is the primary cause of obstruction to sinus drainage and that the allergic state, if it can be shown to exist, may be readily established in the presence of congested and irritable mucous membranes, so common in patients with paranasal sinus disease.

The majority of rhinologists today recognize the importance of both infection and allergy in the etiology of sinus disease. They classify disease of the sinuses into suppurative, hyperplastic, and a mixed group in which the allergic form is placed. Support for this viewpoint is to be obtained both from clinical observation and histopathologic studies of tissues removed from local lesions. Anyone who has observed many patients with some form of nasal allergy must have been impressed with the large incidence of sinus infection among them. This is particularly true of those showing symptoms throughout the year. In them the chronic edema of the nasal mucous membranes soon leads to hyperplasia of the soft tissues—especially around the middle turbinate—

and thickening of the mucosa about the ostia sufficient to narrow the normal opening. Impairment in drainage soon results in chronic sinus infection. The incidence of sinus disease secondary to nasal allergy would appear to be considerable. Of five hundred hay fever patients studied by Duke,⁵ 27 per cent of the perennial cases and six per cent of the seasonal cases, a total of 33 per cent, showed definite evidence of chronic nasal sinus infection. During the past three years we have studied a fairly large number of hay fever patients, both seasonal and nonseasonal, in the asthma and allergy clinic of Stanford Medical School, and whereas no accurate statistical data are as yet available, a conservative estimate of the occurrence of some grade of sinus disease among these patients would be about 50 per cent. These patients were studied with the coöperation of a member of the rhinological staff assigned by the department to make these examinations, which included all the usual methods of study, roentgen rays, and, in many instances, a cytological examination of the aspirated secretion.

Further support for the recognition of allergic sinus disease as a clinical entity comes from the histopathologic studies of Hansel.⁶ In the tissues removed from the nose and sinuses of patients manifesting the clinical symptoms of nasal allergy uncomplicated by secondary infection, this observer found definite histopathologic changes: in the epithelium, thickening, hyperplasia, and polypoid degeneration; in the submucosa, eosinophilic infiltration, edema, and varying numbers of mononuclear, lymphocytic and connective tissue cells. The glands of the submucosa were found compressed and atrophic and the blood vessels dilated, thickened and compressed. In the bone there was evidence of a hyperplastic and atrophic change.

With the advent of secondary infection, Hansel found the microscopic picture modified by the appearance of varying degrees of infiltration with polymorphonuclear leukocytes, lymphocytes, plasma cells and round cells. This increased infiltration of the epithelium and submucosa with polymorphonuclear and other cells may greatly obscure the prominence of the eosinophil. Following long-continued infection, infiltration with connective tissue occurs, a histologic picture which is indistinguishable from that of true primary sinus suppuration. In the stage of fibrosis it may be difficult to distinguish, pathologically, instances of primary sinus suppuration in which bacteria are the causative agents from allergic sinus disease complicated by secondary infection, unless it is possible to find, histologically, areas of edema and hyperplasia without infiltrative changes. Such telltale areas are usually to be found. If corroborative studies confirm Hansel's contention that allergic sinus disease gives rise to a distinct histopathologic picture, we shall have another valuable way of differentiating this form, even when complicated by secondary infection from primary suppurative disease of the sinuses.

DIAGNOSIS OF SINUS DISEASE OF ALLERGIC ORIGIN

The data required for a diagnosis of allergic sinus disease are the same as those essential for the recognition of allergic manifestations in the nose. For purposes of clearness, these may be considered under the headings of clinical history, rhinoscopic examination, eosinophilia in the nasal secretions, and cutaneous tests.

History.—There is no disease group in which a detailed history is more essential, and there are few histories more difficult for the uninitiated to obtain. It is necessary to go into every ramification of the patient's life, activities, and surroundings. The family history must be searched for the presence of manifestations of hypersensitivity in antecedents, for a positive family history occurs in 60 per cent of clinically hypersensitive patients, whereas it is present in only seven per cent of the general population.⁷ Hence the presence of seasonal or perennial hay fever or other allergic manifestations in the parents, grandparents, uncles, or aunts always suggests the probability that the presenting nasal symptoms are allergic.

The diagnosis of seasonal hay fever is usually not difficult if, in addition to an allergic history, the patient has seasonal attacks attended by coryza, lachrymation, itching of the eyes and nose, sneezing and nasal obstruction. When, however, the same condition occurs as a perennial disease, the diagnosis is frequently mistaken for an infective type of coryza, and many surgical procedures may be undertaken in an effort to give the patient relief.

Rhinoscopic Examination.—The appearance of the nasal mucosa in patients showing allergic nasal reactions has been well described by Coates⁴ and more recently by Hansel.⁶ These observers emphasize the bilateral character of the pathologic changes and the variations in the appearance, depending upon the severity and frequency of the attacks and the duration of the disease. In the early cases the mucous membrane is pinkish gray in color, and so markedly edematous and boggy that nasal breathing is completely obstructed. In patients having typical seasonal hay fever, the symptoms do not last long enough to produce permanent changes in the mucous membrane. In consequence, during the inactive stage, the nasal membrane, except for discoloration, may appear normal. Patients with symptoms throughout the year, however, show striking pathologic changes in the mucous membranes. Due to the generalized hyperplasia of the epithelium the membrane takes on a pale gray color. This change has been noted more especially over the anterior tips and lower margins of the middle turbinates and in the anterior ethmoidal regions. The hyperplasia of the epithelium and the edema of the submucosa over a long period of time give rise to the polypoid degeneration so frequently noted in these conditions. The mucous membranes of the eth-

moid and maxillary sinuses may show pathologic changes similar to those observed in the nasal membranes.

Eosinophilia in the Nasal Secretions.—The eosinophilic reaction is generally recognized as an important phenomenon of allergy. A blood eosinophilia is not an uncommon although by no means an invariable finding in these patients. In a recent study of three hundred and forty-six patients, Brown⁸ found an average of seven per cent eosinophils in the blood of patients with perennial hay fever due to protein sensitization. In addition to their increase in the blood, eosinophils occur in large numbers in the tissues, sputum, and nasal secretions of allergic patients. Eosinophilic infiltration has been found postmortem in the bronchial walls and, as has already been pointed out, it is a characteristic of the submucosal tissues removed from the nose and sinuses of patients manifesting allergic symptoms. Recently Eyermann⁹ called attention to the diagnostic significance of an eosinophilia in the nasal secretions. He regards it as one of the most striking features of nasal allergy, just as an eosinophilia is an outstanding characteristic of the bronchial secretions in allergic asthma. In a study of the nasal secretions of ninety-one patients with various conditions of the nose, Eyermann found eosinophils present in 72 per cent of those showing nasal allergic reactions as compared with only nine per cent in the nonallergic group. This finding is in keeping with the histopathologic studies already presented. A cytologic examination of the nasal secretions for eosinophilia may, therefore, serve as another diagnostic aid in the differentiation of obscure instances of nasal allergy from other nasal conditions.

Cutaneous Tests.—Much has been written in recent years concerning the dependability of skin tests in the diagnosis of allergic diseases. Whereas such tests are only one link in the diagnostic chain, one must nevertheless regard them as indispensable, more particularly in the study of the patient with seasonal or perennial hay fever. In these patients skin tests are a very reliable guide as to causative protein inhalants responsible for the nasal symptoms, and fortunately in this group the percentage of positive tests obtained is very high. It is therefore important for the physician who expects to study many patients with nasal allergy to have in his possession suitable preparations of practically all the substances that are known to sensitize the nasal membranes. He must be willing to spend the time and he must have the patience to test and retest his cases because frequently many and repeated tests are required before the cause or causes underlying a given instance of nasal allergy are successfully determined.

Skin tests are particularly reliable in the diagnosis of allergic manifestations in children, and in them the cause of nasal and sinus symptoms may frequently be determined by this method of study. Because of the tendency to overlook pro-

tein sensitization as a possible cause of chronic sinus disease in children, the suggestion has been made that the allergic factor be assumed until it has been definitely excluded.¹⁰

Too much, however, must not be expected from the skin test. It has definite limitations in diagnosis. There is an impression, far too common, that if the reactivity of the skin indicates the presence of an allergic condition, failure to obtain a positive reaction rules out the existence of protein hypersensitiveness. This is a conception far from the truth and one that has led to much discredit of the skin test as a diagnostic procedure. A reliable history, an expert rhinologic examination, and clinical tests must still constitute the basic data for an etiologic diagnosis of nasal allergy.

THE TREATMENT OF ALLERGIC SINUS DISEASE

The best results in the prevention and treatment of nasal sinus disease of allergic origin can be achieved only by the close coöperation of the rhinologist and the internist devoting his time to the study of allergic diseases. The proper therapeutic course to pursue in each patient depends largely upon the degree to which nasal allergic symptoms are complicated by nasal lesions and infection. Judging from recent rhinologic literature, it would appear that most rhinologists agree that uncomplicated seasonal and perennial hay fever are nonsurgical conditions. Coates⁴ has summarized in a concise way the therapeutic problem in this group of allergic patients: "In no case where protein sensitization can be demonstrated should dependence be placed on nasal surgery. Where this is done, good results will rarely be obtained, and for this reason surgery for such cases falls into disrepute. Allergic treatment should first be instituted and carried out."

The results of desensitization in this group of allergic patients vary somewhat with the methods of treatment employed by different workers. That the results of the specific therapy of hay fever are gradually improving would appear from almost every recent paper on this subject. An excellent summary of the present status of the hay fever problem has been published by Feinberg.¹¹ Vander Veer, Cooke, and Spain,¹² Bernton¹³ and Piness¹⁴ report some degree of symptomatic relief in from 75 to 94 per cent of all hay fever patients. Walker,¹⁵ a pioneer worker in this field, has recently analyzed a series of one hundred of "apparently cured" hay fever patients. He defines the word "cure" as freedom from symptoms for two or more years without treatment, the average duration of specific therapy having been three and a half years. It is doubtful whether it is justifiable to apply the term "cure" to an ailment in which hereditary predisposition plays so important a part. Certain it is, however, that improvement in methods of treatment and the elimination of other causes of failure will increase the number of instances of more complete and lasting relief.

An important therapeutic advance is the growing tendency to supplement the preseasonal and

coseasonal treatment of the hay fever patient with desensitization throughout the year. In our hands, perennial treatment promises to give the most permanent relief. The method employed by us is briefly the following: Patients who are multiply sensitive to the spring or fall pollens are treated simultaneously with two or more extracts, the dose of each extract being given separately in different sites in the arm. Before the pollinating season, the dose may be increased quite rapidly at biweekly intervals; during the season the frequency of injections is increased to triweekly intervals, but the dosage is kept below an amount likely to cause a strong local or a constitutional reaction. Between seasons the dose of extract is again increased to as high a point as possible, and this dosage may be continued at fortnightly intervals throughout the year. In instances of perennial hay fever resulting from multiple sensitization to pollen and other biologically unrelated allergens, treatment is carried out at the same time both with pollen extracts and those made of the other protein offenders. Desensitization with animal epidermal extracts and various miscellaneous substances, such as orris root, silk, cotton and other components of environmental dusts, is undertaken only if it is clear that elimination therapy alone will be ineffective.

The frequent association of nasal allergic manifestations with nasal anomalies and infection has already been stressed. To obtain the best results in these patients, a combination of desensitization and local surgical measures may be essential. This aspect of the subject has been discussed in previous papers.^{16, 17} Regardless of whether a nasal anomaly or a focus in the nose or sinus is directly secondary to the allergic manifestations or is coincidental, if drainage is interfered with, good judgment demands its correction. Many rhinologists report good results, particularly in the perennial hay fever patient, following appropriate local surgical measures. If the faulty mechanical condition of the nose is the result of obstruction from a turgescient, allergic mucous membrane, local shrinkage of the membrane frequently gives immediate relief while awaiting the more permanent relief from specific treatment. In the event proper ventilation and drainage of the nose still continues defective after a course of desensitization, corrective surgical measures are justifiable. It is at times difficult when allergy and nasal anomalies and infections are all present to decide which form of treatment to employ first. The proper therapeutic sequence can only be determined by a study of the individual patient.

Finally it should be emphasized that no therapeutic regimen in patients with chronic sinus disease is complete unless it includes those general measures which are likely to improve the vitality and resistance of the respiratory mucous membranes. Those agents which seem to give the greatest promise in this direction are a vitamin-containing diet, cod-liver oil, sunshine and calcium therapy.

The exact mechanism underlying desensitization of a hypersensitive patient is little under-

stood. It may be assumed that in some way the permeability of the cells lining the mucous membranes of the body is lessened, so that they no longer react unfavorably to certain protein substances, contact with which had heretofore given rise to an allergic reaction. That this inherited vulnerability and irritability of the mucous membranes in allergic patients may also be modified by the general measures mentioned appears very likely. The value of diets rich in vitamin A as an aid to improvement in the resistance of the sinus membranes to infection is supported by some good experimental work. In 1923, Daniels and her co-workers¹⁸ showed that a diet deficient in fat soluble vitamin A, found abundantly in butter fat and cod-liver oil, may predispose to the development of sinus infection in the experimental animal. Barlow also noted¹⁹ that a diet in which Vitamin A is deficient gives rise in animals to marked changes in the mucosa of the respiratory tract, edema and small cell infiltration, resulting in rhinitis, sneezing, and wheezing—symptoms all of which suggest an allergic nasal reaction. Although similar studies on the influence of nutrition on the allergic responses in man are not available, it is reasonable to infer that an allergic mucous membrane may be rendered less reactive by a diet rich in vitamin A.

To a diet rich in vitamins, and more particularly in vitamin A, sunshine, natural or artificial, cod-liver oil and calcium are important adjuvants. The employment of calcium in patients with allergic manifestations has been considered valuable by some and useless by others. Because of its antagonistic action to sodium and potassium, calcium has the property of diminishing neurocellular hyperexcitability and of decreasing the permeability of cell membranes. This difference of opinion as regards the therapeutic value of calcium may have resulted from a failure to insure its absorption in adequate amounts. Recent studies show that calcium absorption is influenced by the acid-base values of the diet, the amount of fat, the addition of cod-liver oil (vitamin D) and the amount of exposure to ultra-violet light.

According to the work of Kahn and Roe,²⁰ the optimum oral dose of calcium lactate is five grams, taken on an empty stomach. This dose is to be taken twice daily, about one-half hour before breakfast and dinner. Children are given about one-half of this amount three times a day before meals.

In the prevention of allergic nasal reactions the general therapeutic measures discussed should prove to be even of greater value since clinical experience has shown that many patients with an allergic constitution may remain symptom-free for many years, even though exposed to substances to which their mucous membranes are sensitive, until the allergic balance is upset by undernutrition, fatigue, or infection. Any measures, therefore, undertaken to increase the vitality of the respiratory mucous membranes in these patients should help to lessen the incidence of chronic nasal sinus disease among them.

SUMMARY AND CONCLUSIONS

1. The mucous membranes of the nose and sinuses are constantly exposed to sensitization with numerous air-borne sensitizing substances. The existence of an inherited predisposition to develop sensitization in over half of the population has made the incidence of allergic manifestations of the nose and sinuses very large.

2. Sensitization of the nasal mucous membranes is a very important predisposing cause in the development of chronic nasal sinus disease. The recognition of sinus disease of allergic origin is based upon clinical and histopathologic evidence.

3. The diagnosis of allergic sinus disease can be made from the clinical history, rhinoscopic examination, demonstration of eosinophilia in the nasal secretions and cutaneous tests.

4. The successful treatment of allergic sinus disease depends upon the success which attends the treatment of the nasal allergic manifestations. Instances of nasal allergy complicated by secondary infection may require local surgical measures. In these patients the best results are achieved by the coöperation of the rhinologist and allergist.

5. Every available general measure which helps to improve the vitality of the respiratory mucous membrane and to lessen cellular permeability should be employed in the prevention and treatment of sinus disease of allergic origin. These should include a high vitamin-containing diet, cod-liver oil, sunshine, and calcium.

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DISCUSSION

WILLIAM PALMER LUCAS, M.D. (490 Post Street, San Francisco).—Doctor Hurwitz' paper interests me very much from the standpoint of an allergic condition associated with sinus infection. There is no question but that the two conditions have an intimate relationship with each other. It is often difficult to say which one is the predominating factor. To give good results, one must treat the individual from an allergic standpoint and also from the standpoint of a sinus infection. We have found that internal glandular derangement conditions are also closely associated with sinus infection. We have quite a large series of cases in which repeated sinus infections are not successfully handled until their metabolic condition is corrected. In some of these cases this may be due to a hypothyroid condition or a hyperthyroid condition. The important point is that the individual must be studied from every point of view where there is a chronic sinus infection.

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J. A. BACHER, M.D. (Stanford University Hospital San Francisco).—Doctor Hurwitz has been very fair as to the relative importance of infection and of allergic factors in sinus disease. There are two causes of discharge from the nose. First: sinus infection, acute or chronic. In the chronic case sometimes no discharge is present except after very careful study. Second: mechanical, chemical or allergic irritation. Polypi are nearly always caused by purulent discharge which irritates the mucous membrane and leads to its hypertrophy. Polypi may rarely be caused by mechanical or chemical irritation. It is questionable whether the edema that may accompany an allergic state can cause polypi without the factor of discharge. Hirsch reported a case of polypi springing from the antrum in a case that he had known for years, to be atrophic rhinitis. Upon opening the antrum, a polyp was found springing from its posterior-inferior wall, with a small pedicle passing through the antral ostium, the body of the polyp hanging over the inferior turbinate. Hirsch does not believe that a purulent condition is necessary for polyp formation. He thinks that a small edematous mass of mucosa in a catarrhal sinusitis becomes incarcerated in the ostium, pinched off in the middle meatus and forms a polyp. Hirsch states that a third of forty-two cases of polypi showed only catarrhal inflammation. Catarrhal inflammation as used by Hirsch presumes discharge, watery in its presenting characteristics. I have always felt that polypi meant purulent sinusitis. When a patient has discharge from the nose and it is watery in character and contains a few mononuclear leukocytes and has an allergic history, we may have a sinusitis—that is, allergic irritation of the sinus lining associated with discharge into and from the sinus. Then there is the case where there is scanty, watery discharge, with negative x-ray and negative allergic history and findings. It is then probable that the discharge comes from a sinus, and most difficult to tell whether or not there is an allergic factor. It remains to be seen whether allergic therapy can cure cases of sinusitis with frank pus and polypi. I think Doctor Hurwitz has given a fair outline of the treatment of such cases.

TUBERCULOSIS OF THE TRACHEO-BRONCHIAL GLANDS*

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THE proper diagnosis of tuberculosis of the tracheobronchial glands is of the utmost importance to the infected child, for hilum tuberculosis not adequately treated may become active at any time and needlessly infect other children with whom it comes in contact. The trend of emphasis in modern pediatrics is to preserve health, rather than restore it. It should be no longer necessary to stress the important fact that tuberculous infection has its inception during infancy and increases in incidence as age advances.

ETIOLOGY

Tuberculosis of infancy and childhood is far more prevalent than ordinarily supposed; for chronic tuberculosis of early life is essentially a lymph node process. The Ghon tubercle or primary infection is easily overlooked and the spread of the infection to the neighboring lymph node presents a matter for conjecture as to whether it will remain dormant in that node and become calcified, or flare up under the strain of repeated infections and increased economic strain and produce a generalized tuberculous infection.

The importance of familial contagion has long been recognized, but even in this advanced age, a contact case, that is, the child in seeming good health, but in intimate contact with one suffering from active pulmonary tuberculosis, is often overlooked. This child may develop an immunity to tuberculosis, it is true, but in the vast majority of cases the onset of miliary tuberculosis or tuberculous meningitis is more often the rule.

DIAGNOSIS

The diagnosis of tuberculous involvement of the tracheobronchial glands should not be based solely upon a positive tuberculin reaction or indefinite clinical and roentgenologic signs when the members or the immediate family are healthy, but, on the other hand, close contact with tuberculous parents or others, even with the child in seeming good health, should put us on our guard. Stoloff¹ considers only two means of any value in the diagnosis of this condition, roentgenologic examinations and tuberculin reaction.

As to the relative value of the Pirquet and Mantoux tests, in 3112 children tested by Smith,² 7.8 per cent gave a positive von Pirquet, while 16.5 per cent were positive to the intradermal test.

Armand, De Lille,³ Bronfin,⁴ and other observers are of the opinion that the D'Espine sign, to-

gether with interscapular dullness, have proved of little value in the diagnosis of this condition. They rely for the most part upon properly taken and interpreted roentgenograms, taken in the anteroposterior and straight lateral positions. Roentgenograms taken in the oblique position are not satisfactory, as a confusing shadow is obtained by the ramifications of the pulmonary artery and bronchi. It can be said, therefore, that as a general rule, tuberculosis of infants without tracheobronchial adenopathy does not occur.

CLINICAL SIGNS

Among 816 tuberculous children at the Sanatorium of Belzig, W. Freymuth⁵ found pulmonary lesions in but 10 per cent, whereas 90 per cent had glandular lesions, these figures being based on clinical signs. Holt, in reporting 119 autopsies of tuberculous children, found tracheobronchial gland lesions in 96 per cent, and Hamburger and Sluka of Vienna reported pulmonary lesions in 50 per cent and tracheobronchial involvement in 96 per cent in 160 autopsies.

The glandular disturbance may assume different forms, according to the glands chiefly involved. These glands, as Gueneau, de Mussy, and Barety have shown, are divided into four large groups:

1. The right pre-tracheobronchial, or right juxta-tracheal group, in the angle formed by the trachea and the right bronchus, in relation anteriorly with the right pneumogastric; on the right with the superior lobe of the right lung; on the left with the trachea below the right and left branches of the pulmonary artery; above with the subclavian artery and recurrent laryngeal nerve. This is the most important group.

2. The left pre-tracheobronchial, or left juxta-tracheal glands, are in relation above with the aorta and recurrent laryngeal nerve and with the root of the left lung below.

3. The inter-tracheobronchial group, underneath the bifurcation of the trachea, immediately below the pulmonary veins; and posterior to the esophagus, the aorta, and the azygos vein.

4. The peribronchial groups, formed by the extremely numerous and, for the most part, very small glands (lymphatic follicles) which accompany the bronchi and their ramifications throughout the mass of lung substance.

In interpreting roentgenograms in children, a knowledge other than that of the adult chest is essential. The National Tuberculosis Association⁶ has expressed itself as follows:

"Interpretation of films should be made by an experienced physician who is familiar not only with chest films in general, but with films of children's lungs in particular. He should also have a clinical background, and the interpretation should not be independent of careful consideration of history, symptoms and physical examination."

* Read before the Pediatrics Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

One of the first great difficulties in the diagnosis of disease of the chest is to have a clear understanding of what is normal. A special commission, appointed by the National Tuberculosis Association to study this problem, reported: "To one observer, shadows noted are indicative of disease; to another they are not evidences of a pathologic process; to one they represent lesions of clinical significance; to another they suggest changes of no moment." The lungs of 171 children coming to necropsy were studied to determine what pathologic changes were present to account for the shadows seen in the roentgenograms of the chest.

It is impossible to formulate any definite normal standard from a roentgenographic standpoint. Interpretation of the x-ray pictures should go hand in hand with the history, clinical and physical observations, and laboratory data. The hilar shadows and linear markings are made up, for the most part, of the blood in the blood vessels and not of the bronchi. The rounded shadows of even density which occur in the inner third of the lung fields, as well as those found along the linear markings, are due to blood vessels running parallel to the axial ray.

Normal lymph nodes do not cast shadows. Hyperplastic lymph nodes, whether caseated or inflammatory, whether in the hilum or in the intrapulmonary tissue, cannot be recognized as such if they do not contain calcium. They do not cast shadows unless they are large enough to encroach on the pulmonary fields from the mediastinum or the hilum, or unless they are visible by contrast in the air-bearing pulmonary parenchyma.

The size and shape of the hilar shadow is influenced not only by active infection, but also by the remains of previous infections. This shadow may show wide variations in different roentgenograms and yet be within normal limits for the person examined.

SYMPTOMS

The symptoms are often overlooked by the average parent, and are often attributed to factors such as overwork in school, growing, and too much activity.

Bronfin⁴ in a recent article analyzed the cases at the National Jewish Sanatorium. Three hundred patients were admitted during a period of six years. The average age was nine and one-half years. The principal complaints on admission were: underweight, 31 per cent; underweight with fatigue, 11.6 per cent; underweight, fatigue, and irritability, 6 per cent; frequent colds and fever, 13.3 per cent; cough, 6.6 per cent; capricious appetite, 10 per cent; periodic swelling of glands of neck, spinal deformities, and unclassified, 6 to 7 per cent. The cases were further divided into tonsillectomized and non-tonsillectomized children, little difference being noted, except in the chronic respiratory con-

ditions. On the basis of exposure, the children were divided thus: contact cases, 51 per cent; probable contact, 21 per cent; and nonexposed cases, 31 per cent. Forty-eight per cent of all cases with periodic rises in temperature of 100 degrees Fahrenheit or over, with or without symptoms, occurred in the exposure cases; 9 per cent in probable exposure; and 11 per cent in negative exposure cases. Irritability and cough was twice as prevalent in exposure patients as in other classes; while underweight was 96 per cent in exposure and only 4 per cent and 30 per cent in probable and nonexposed patients. The number tested for the tuberculin reaction was small. Of such, 95 per cent of the exposure patients gave a positive reaction, while 70 per cent and 53 per cent in the probable and negative exposure. These numbers would be of greater significance had the intradermal test been used, rather than the classical von Pirquet.

Roentgenographic examinations were also made in Bronfin's series of cases, and the interpretations, made independent of clinical symptoms, clearly illustrate the importance of roentgenography as a diagnostic aid. In 155 cases of definite exposure, 8.3 per cent were normal. Enlarged hilums were present in 78 per cent; calcified hilums in 75 per cent; tracheobronchial tuberculous in 81.8 per cent; primary foci in 74 per cent; and tuberculosis in 79 per cent. In ninety-three probable exposure cases, 16.7 per cent were normal; 15.4 per cent enlarged hilums; 19 per cent had calcification at the hilum; 13.6 per cent had tracheobronchial tuberculosis; 25.7 per cent had primary foci; and 17.8 per cent had tuberculosis. But in fifty-two negative exposure patients 75 per cent were normal; 6.6 per cent had enlarged hilums; 5.1 per cent showed calcification at the hilum; 4.6 per cent had tracheobronchial tuberculosis, with no primary foci being demonstrated.

The symptoms of tracheobronchial glandular tuberculosis are usually those of a mild disturbance of nutrition. The child does not seem as well as usual, tires easily, is irritable and cross. He does not get on as well at school as children of his own age. His appetite is poor and there is failure to gain in weight. There is more or less pallor and the temperature shows a daily rise. There is usually no cough and no sweats. Cough if present is usually dry, nonproductive and pertussis-like in character, due to pressure of glands on recurrent laryngeal nerve.

The physical signs are indefinite and often misleading. Bronfin is in accord with Armand, DeLille, and others, in the value of D'Espine sign and interscapular dullness. Faulty posture was observed in a very small number, while positive symptoms were no greater in the long, slender, asthenic types of chest, than in those of normal chests. They agree with Bernard that the pretuberculous child does not exist. The only evidence of value is the intradermal tuberculin reaction, and roentgenologic investigation.

CONCLUSIONS

The diagnosis of tuberculosis of the tracheo-bronchial glands is not based solely upon physical signs. Properly taken and carefully interpreted roentgenograms, intradermal tuberculin tests, and a careful history as to exposure to tuberculosis are the main essentials in the diagnosis of this condition.

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DISCUSSION

LLOYD B. DICKEY, M.D. (Stanford University School of Medicine, San Francisco).—Doctor Savage has brought up a very important subject in pediatric practice. We could emphasize this importance if we were able to quote the incidence of hilum node, or tracheobronchial tuberculosis, among children who are examined. As this diagnosis must in most cases be presumptive, we could approach determining the true incidence only by exhausting every possible resource for a diagnosis. Among the aids we have are: the history of the patient, with especial reference to exposure; the physical examination, which rarely helps; the roentgenographic and tuberculin studies, which are very important; and a period of observation. In our clinic at Stanford, where we used these aids in all cases before diagnosing tracheobronchial tuberculosis, we presumed that about 4.3 per cent of all our children had this condition in an active form. In about 7.2 per cent there was evidence pointing to a previously healed infection of this type. Possibly these figures approach the true incidence insofar as figures may in presumptive diagnoses.

The differential diagnosis is a very important phase of the question. The National Tuberculosis Association is distributing a booklet by Chadwick and McPhedran entitled "Childhood Type of Tuberculosis—Diagnostic Aids." This contains much valuable information. On page seven appears the following sentence: "The diseases that sometimes simulate the childhood type of tuberculosis are bronchopneumonia, bronchiectasis, pulmonary abscess, Hodgkin's disease, enlarged thymus, neoplasms, and mediastinal abscess." In our experience all of these, except the first two, are relatively uncommon as compared with tuberculosis. I think we are safe in saying that in our community by far the commonest condition simulating childhood tuberculosis is chronic infection of the accessory paranasal sinuses and the associated chronic bronchitis which usually accompanies it. This may not be true in Philadelphia or other communities near the eastern seaboard.

From the beginning of mankind's study of tuberculosis, we have known much more about the end results of the disease than about its initial stages. It is only fairly recently that we have known much about the beginning of infection, and there are still

many facts to be known before the story of the pathogenesis of tuberculosis is completed. Every study made of childhood tuberculosis may add to our knowledge, and these studies should be encouraged in every community.

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CARL R. HOWSON, M.D. (711 Merritt Building, Los Angeles).—Doctor Savage's paper has to do with a subject concerning which there is perhaps as great need of enlightenment as in any department of medicine.

The importance of having in mind always the danger to the child in contact with a case of open tuberculosis in the home is coming to be increasingly stressed as we study such groups. In McPhedran's studies the frequency of tuberculous infection among contact children was three times that of non-contact children.

As a rule physical findings certainly help us very little in the recognition of these enlarged nodes, but a careful physical examination is none the less important, and frequently gives vital information concerning other or complicating pulmonary conditions.

A modification of the Pirquet test which adds considerably to its value is the addition of O. T. B., which can be applied on the lowest of the three scarifications, in place of O. T. H. In a small but appreciable proportion of cases a reaction is obtained to this preparation, but not to O. T. H. In many cases reactions can be obtained by the intracutaneous test of Mantoux after failure to react to the cutaneous test. My personal preference in such cases is for the intracutaneous administration of 0.1 milligram of O. T. This is, of course, too large a dose to use initially, but I have never seen unduly severe reactions if the cutaneous test was first applied and found negative. The fact that allergy is depressed and tests may be negative during or immediately following acute illnesses, such as influenza, measles, etc., should be borne in mind. Marked malnutrition or anemia may have the same effect.

The x-ray is of value in the few cases where the glandular enlargements are of such magnitude that they project out into the lung field. By means of oblique or lateral views it shows also the lesions in which calcification has taken place, but this is obviously a late stage and, while some of these may still be active, the vast majority are old. Their importance in regard to the future of the child must be kept in mind, but the great need is recognition of the infection during its active stage. Fibrous changes are undoubtedly responsible for much of the change in density, and here again the question arises as to their significance with regard to present activity. It follows, therefore, that in the great majority of cases we are unable to demonstrate the local pathology.

However, given a history of contact, with symptoms of toxemia and a definitely positive tuberculin test, the diagnosis is clear, even in the presence of complicating conditions which may contribute to the symptomatology. The absence of such a history should not lead us to overlook the significance of the symptoms and the tuberculin reaction, though more conservatism is necessary.

In the treatment of the condition, the children need rarely be confined to bed, but can be very successfully cared for in open-air school rooms, without loss of grades.

The importance of diagnosis lies in our ability to build up these children by adequate rest, proper medication, etc., and to see that they are protected from overstrain during the trying period of puberty, when more serious tuberculous lesions are liable to develop. It is our hope that by such recognition, care and guidance, we shall materially lessen the incidence of adult tuberculosis, which still ranks first as a cause of disability and death during the early adult years.

OUTSTANDING PROBLEMS FOR PEDIATRICIANS*

By DONALD K. WOODS, M. D.
San Diego

IT was suggested last year by many of the members that this section dispense with an address by the chairman. I cannot refrain, however, at this time from bringing a few of our outstanding problems before you. It is not my object to propose solutions of these problems or even make suggestions toward their solution, but merely to keep these matters fresh in the minds of all pediatricians.

I do not feel that the specialty of pediatrics needs justification for its existence. There is, however, an expressed and implied doubt existing in the minds of other medical men whether pediatrics is an entity and particularly whether it deserves a place in our state society as a separate section. This uncertainty, as in many other cases, is due to a lack of understanding of the peculiar problems involved.

The infant and the young child are anatomically and physiologically profoundly different from the adult. Each has the same systems and in a manner the same functions, but the child is greatly affected by growth and development and thereby rendered unstable. And most important, the child is partly or wholly lacking in resistance to infection.

If the pediatricist were to justify his existence on no other ground than that of prevention by proper instruction and care of some of the chronic conditions and diseases, he would have served his purpose well. Many of these chronic infirmities begin in childhood and may be arrested or cured during this period.

In the pediatricists' field alone today probably lies the opportunity for the solution of the greater number of the present problems of medicine and surgery. Recent special attention to the respiratory, and particularly upper respiratory tract, is illuminating and indicates the need for our participation. Sinus disease in childhood is only too slowly being recognized as an entity. With this and the frequently resultant secondary infection in the chest, there is a challenge to our resources second not even to the challenge of juvenile tuberculosis.

I believe it is but a short time until we shall see considerable specialization within the so-called specialty of pediatrics. I feel that we have particularly neglected the upper respiratory tract which, as we all know, is one of the chief sources of childhood difficulties. We pediatricians have a general knowledge of this field and we frequently call, in consultation, nose and throat men to help us in the more technical cases of sinus and middle ear infection. But we frequently find lack of interest and experience where a child is concerned. I therefore believe it is worth while for us to think seriously of men who will specialize

almost entirely, if not entirely, upon the upper respiratory tract or the ear, nose, and throat in children. I feel that in the field of sinus infection alone we have the source of a great many of our present problems and I think we must all admit we know little about this particular area. Arthritis, endocarditis, general malnutrition, general lowered resistance, and constantly recurring upper respiratory infections are probably in a great majority of cases due to low-grade sinus infections which in the past have rarely been diagnosed or even been considered. In the same manner I believe the entire field of pediatrics should be covered and opportunities for more thorough and specialized consideration of our problems should be pointed out.

One other major problem, the business of medicine or medical economics, particularly concerns pediatricians. I believe that every section of the state society and also every county society should make a more definite study of the business of medicine. I feel that the program of every section each year should have at least one paper with discussion upon this subject. It is only by such coördination of efforts that we shall be able to produce results and have a proper understanding of our economic problems. As we all know, there is a growing flare for social medicine and multiplication of clinics. Much of this work develops among, and devolves upon, the pediatric group in any community. I feel that under the guidance of our county organizations and sections of the state society we should carry on careful surveys to definitely determine how much time pediatricians are to spend with their own private work and how much shall be given the community and enthusiastic lay workers.

Finally I believe it is not out of place to merely mention, in connection with the business of medicine, that it is becoming constantly more necessary for all physicians to pay more careful attention to accounting within their own offices. I think the failure of the physician in the past to put his office on a business basis has been one of the chief sources of much careless medical practice, and also one of the chief causes of the present widespread dissatisfaction with the cost of medical care. We have educated the people and community to be paupers and recipients of gratuitous medical services regardless of their status. Scientific men rather shudder at the mention of such gross matters as finances, but the time has come, or rather has been with us for a considerable period, when we need to give more careful consideration to these subjects. There is no more reason why physicians should give millions of dollars' worth of services to the state and county each year than that lawyers, real estate men, or grocers should give the same service. May we always, however, as in the past, be charitable where there is need. Nevertheless, we must be firm in our demand that we be given a voice in deciding where that need exists and when and by whom our time and skill shall be dispensed.

2545 Fourth Street.

*Chairman's address, Pediatric Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

STONES IN SINGLE KIDNEYS—THEIR MANAGEMENT*

REPORT OF CASES

By JAMES R. DILLON, M. D.

AND

JENNER G. JONES, M. D.
San Francisco

DISCUSSION by Robert V. Day, M. D., Los Angeles; C. J. Negley, M. D., Los Angeles.

IT is with a high degree of confidence and unconcern that we advise and urge the most radical surgical procedures upon a diseased kidney when we know its opposite fellow is normal. On the contrary, when a patient has a single kidney, whether due to a congenital absence, disease, or to the surgical removal of its fellow, any impairment excites as much apprehension as a lesion of the heart, brain, or any other single vital organ. That this apprehension is more or less general, and that single kidneys are attacked only as a last resort, is illustrated by a statement by Keyes in a report on six cases, in which he operated on four of the patients for anuria, and one for persistent pain. All his patients stood the operation as well as patients with two kidneys.

Walters of the Mayo Clinic reports forty-three cases of single kidney and ureter operations with a mortality rate of 14 per cent. The cause of death in all patients was due to sepsis and uremia, and he urged an early operation for removal of stone before renal insufficiency and infection developed to such extent as to greatly increase the operative risk. Keyes stressed three points in his operative technique: first, the kidneys were

handled gently; second, the pyelotomy incision was left unsutured; third, the kidneys were de-capsulated. These precautions were taken in the hope of minimizing the postoperative renal congestion. There were a few other articles reporting one or two cases of operations on single kidneys, mostly for calculus anuria, or for resection of the solitary double kidney types.

COMMENT ON REPORT OF CASES

This presentation is based on the report of four cases, three of which were true solitary kidneys, due to nephrectomies of the opposite kidneys, and one case of uremia from bilateral nephrolithiasis, with one completely obstructed and functionless kidney, and the other containing a large stag-horn stone completely filling the pelvis and calyces.

The particular point in the operative technique was gentleness, as stressed by Keyes, but rather, by *not* handling than by handling the kidneys. In order to accomplish this, ribs were removed where necessary, to facilitate the approach to the posterior surface of the kidney, pelvis, and ureter, without stripping the kidney of any more of the perirenal fat than necessary.

In the first case (Fig. 1), the pelvis was of the extrarenal type and the stone small, so that only the lower half of the posterior surface of the kidney, the pelvis and upper end of the ureter were exposed and the stone was easily removed through a simple pyelotomy.

The next case (Fig. 2) presented greater difficulties of approach. A rib was removed, and only the lower pole, lower half of the posterior surface, ureter and pelvis exposed. The pelvis in this case was the intrarenal type. The upper end of the ureter was opened and the incision carried to the renal parenchyma. A small stone was easily removed, but the large one which filled the lower dilated calyx and protruded by a smaller nodule into the pelvis, could not be dislodged. The incision in the pelvis was sufficient to allow the little finger to be pushed against the stone bulging the cortex, where a curved clamp was thrust through the cortex into the calyx and spread gently. The stone, one by two centimeters in size, was grasped by stone forceps and by traction, assisted by the finger in the pelvis, and was removed by a partial nephrolithotomy, which was closed by a single mattress suture with damage to not more than a cubic centimeter of renal tissue.

The third case (Fig. 3) of single kidney came in with an anuria of over

* From the Division of Urology, Stanford Medical School.

* Read before the Urology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

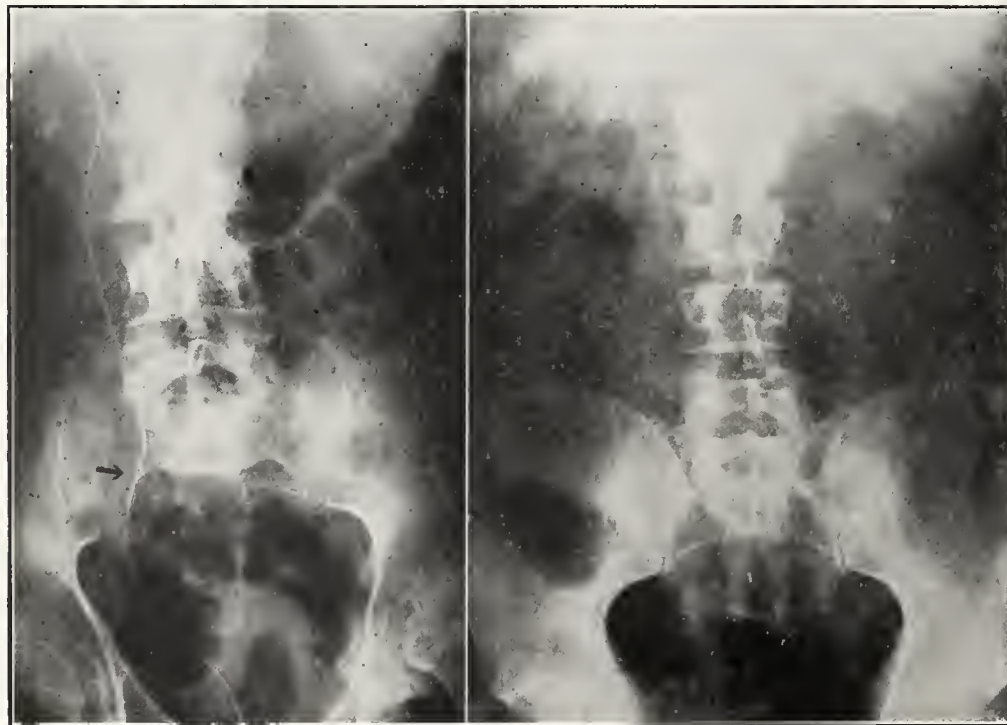


Fig. 1 (Case 1).—Kidney and ureteral stones in solitary kidney and ureter.

Fig. 2 (Case 2).—Stones in solitary right kidney.

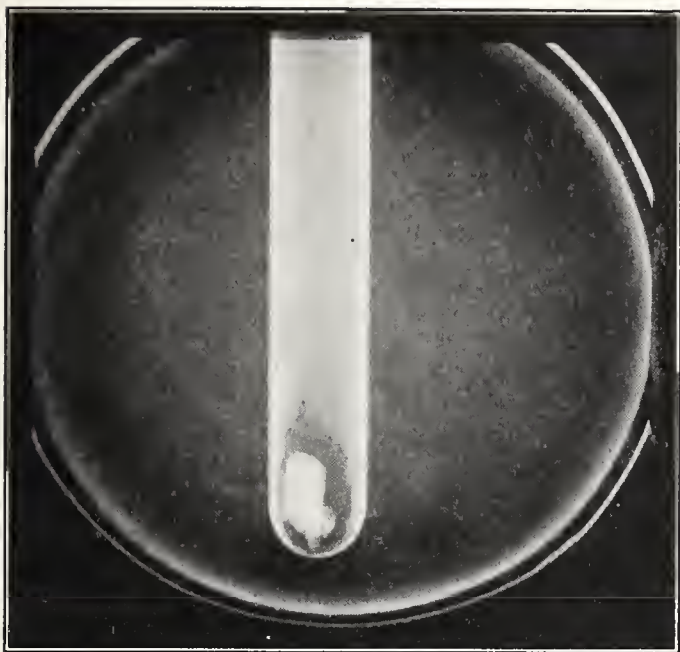


Fig. 3 (Case 3).—Large ureteral stone in tube and beaker of urine, which did not cast an x-ray shadow in patient.

twenty-four hours. The x-ray examination was negative, no stones showing. The ureteral catheter was stopped at about twenty centimeters. Exposure at this point delivered a large ureteral stone, which cast a dense shadow in all media (Fig. 3) and under all conditions after removal.

The fourth case (Fig. 4) came in uremic and septic, with a greatly diminished output of urine, due to bilateral nephrolithiasis mentioned above. His blood urea before operation was 102 milligrams per 100 cubic centimeters. In this case a rib was resected and the kidney, ureter, and large extrarenal pelvis were exposed. The pelvis was incised, and the bridge of stone filling the pelvis between the upper and lower calyces was broken away with clamp and rongeur forceps and removed in pieces. A clamp was held under the ureter at the lower end of the incision to prevent particles from dropping down the ureter toward the bladder. The ends of the stone filling the kidney poles were grasped with forceps, and after a

little difficult manipulation were removed (Fig. 6). The pelvis was then thoroughly irrigated with salt solution to remove small particles, and the pelvis palpated (Fig. 5). The blood urea rose to 198 milligrams, postoperative, then slowly diminished to a level of 40 to 50 milligrams, which is still maintained.

Incisions into pelves and ureters were approximated by interrupted fine catgut sutures in all cases, and suitable drainage installed. Fluids were not immediately pressed for fear of increasing congestion, only 500 to 700 cubic centimeters of salt solution daily being given under the skin for the first two days, until a free urine output was established, and then fluids were forced. The recoveries were all fairly uneventful.

REPORT OF CASES

CASE 1.—O. M. Hospital No. 182247. Age, twenty-eight; unoccupied; white; male. Six years before coming under observation the patient was in an automobile accident; fractured spine in three places, fractured pelvis, ribs and skull. Patient had laminectomy following injury. He had urinary and fecal incontinence for three to four months following injury. A retention catheter was in place during this time. The urine became very foul. Some gravel was passed following removal of catheter. In 1926 patient had a lithotripsy. Two years ago a left perirenal abscess was drained, and two months later the remainder of the left kidney was removed. Patient entered Lane Hospital on November 26, 1928, complaining of pain in the bladder and rectum, incontinence, and paralysis of legs below knees. Urine was very dirty, many red blood cells present; blood urea, 22.5 milligrams. Phthalein 50 per cent, two hours. Cystoscopic examination showed two bladder calculi three by two centimeters and one by two centimeters in size. X-ray showed a right renal calculus in the lower pole of the kidney and a small ureteral calculus three by four millimeters at the brim of the pelvis. Blood normal. On December 5, 1928, lithotripsy was attempted, but the calculi were too hard to be crushed, so lithotomy was performed. Postoperative course uneventful. The patient's urinary symptoms were much improved following this. On December 21, 1928, patient was able to hold urine two to three hours, where he had been more or less incontinent before the operation. On December 24, 1928, phthalein was 40 per cent. On January 14, 1929, the ureteral calculus was removed through a right inguinal incision. Postoperative course uneventful. On January 24, 1929, blood urea



Fig. 4 (Case 4).—Large stag-horn stone removed through pyelotomy incision.



Fig. 5 (Case 4).—Four months after removal of stone from right kidney.



Fig. 6 (Case 4).—Stone after removal.

was 26.25 milligrams. On February 11, 1929, right pyelotomy was performed, a small calculus one by five centimeters was removed from the lower calyx. Patient recovered from this operation uneventfully. Following this a long course of physiotherapeutic measures were started. Patient left the hospital on June 10, 1929, markedly improved.

CASE 2.—W. C. Hospital No. 178983. Age, thirty-eight; white; male. Salesman. Past history: Patient had gonorrhea in 1918. In 1920 a seminal vesiculectomy was performed at a Kansas City hospital which resulted in a recto-urethral fistula that did not heal, although several attempts were made to repair it. The patient enjoyed fairly good health in spite of a chronically infected urinary tract, until April 1928, when a left pyonephrosis developed, and on April 13, 1928, a left nephrectomy was done. During the convalescence a stone was discharged from the wound. There was still some left-sided pain persisting, and the general condition of the patient was not good. He was not able to work at all. An unsuccessful attempt was made to close the recto-urethral fistula in August 1928. X-rays at this time showed two calculi in the lower pole of the right kidney; one measured one by two centimeters, the other very much smaller. The patient was still unable to do any work, and on February 25, 1929, following an automobile ride, he developed severe colicky pain in the right kidney region, radiating to the abdomen; nausea and vomiting. He entered Lane Hospital on February 26, 1929. X-rays showed the stones in the right kidney as before. Urine showed much pus and many red blood cells. White blood cells were 19,100; polymorphonuclears, 77 per cent. Blood urea was 36.75 milligrams per 100 cubic centimeters of blood. Temperature on admission was 40.2 centigrade. The temperature fell gradually, reaching normal limits in five days. Ten days following the onset of attack, March 8, 1929, pyelotomy and partial nephrolithotomy operations were done. After a resection of the twelfth rib, the lower pole of the kidney was exposed and the ureter found and held in a ureteral clamp. An incision was made into the pelvis posteriorly at the ureteropelvic junction, sufficient to admit the little finger. The smaller stone was removed through this incision with the stone forceps. The larger stone could not be extracted through the pelvis; a curved clamp was pushed through the cortex of the kidney into the pelvis and the stone grasped through this incision. Considerable infection delayed the healing of the wound. Temperature was septic for ten days postoperative, but following this it dropped to normal and recovery was complete. On April 12, 1929, successful repair of the recto-urethral fistula was performed. On June 14, 1929, x-ray ex-

amination showed no calculus. X-ray was repeated on December 5, 1929, and was negative. Blood urea, 30 milligrams per 100 cubic centimeters of blood.

CASE 3.—G. C. Hospital No. 149283. Greek; male; age, fifty-seven. Gardener. This patient entered the hospital on February 8, 1929, complaining of having had severe pain in right side and back, nausea, vomiting, and anuria for twenty-five hours. He had had a left nephrectomy three years before for pyonephrosis with calculi. One and one-half years following this a suprapubic prostatectomy was done. Examination on admission showed a very sick man. Temperature, 38.3; pulse, 112; rigidity and tenderness in the right kidney region. Cystoscopy showed no bladder urine. Catheters were passed up the right ureter about twenty centimeters, but no urine was obtained. X-ray showed no calculus. Diagnosis of calculus completely obstructing right ureter was made. Operation was performed on February 9, 1929. The lower pole of right kidney was exposed in the usual manner. The ureter was dilated down to a point five centimeters below the ureteropelvic junction. At this point a stone was palpated. The ureter was incised over the stone, and very dirty urine gushed out. The stone was removed and the wound closed with drainage. The patient was in much better condition at the end of the operation than at the beginning. Blood urea at operation was 120; postoperative, it rose to 170 and fell to 30 at time of discharge. The patient ran a septic temperature for two weeks, followed by a low-grade temperature for twenty-one days. Patient was discharged on the thirty-ninth day.

CASE 4.—W. M. Hospital No. 167502. Russian; male; age, fifty-nine. Paperhanger. Patient entered Lane Hospital on October 25, 1929, complaining of having had pain in back for four years. Two years previously the patient was operated on and three hundred small stones were removed from the left kidney. The pain persisted on the right side. The patient was uremic. Blood urea, 102 milligrams; white blood cells, 21,200; polymorphonuclears, 78 per cent; hemoglobin, 70 per cent; red blood cells, 3,960,000. Cystoscopy and intravenous indigo-carmin revealed a functionless left kidney. Accordingly it was decided to operate the right kidney, containing the large stag-horn calculus. The kidney was exposed in the usual manner; resection of the twelfth rib gave excellent exposure. The pelvis, which was extrarenal, was opened and the stone crushed with forceps and removed in pieces. The patient made an uneventful recovery and was discharged on the twentieth day postoperative. The blood urea rose to 198, postoperative, and had fallen to forty-eight on day of discharge and this level is still maintained. The patient continues to pass small stones, but is feeling quite well. Cystoscopy now shows a good functioning kidney on the right; the left is still functionless. He refuses operation on the left side.

CONCLUSIONS

1. There were no more difficulties nor complications encountered in this small series of solitary kidney patients than in those with two kidneys.
2. These patients were just as operable and were better risks before they developed their intense pain, sepsis, anuria, and uremia.
3. The practice of gentle handling of the kidney with as little trauma and perirenal stripping as possible and rib resection for better exposure is a large factor in preventing serious postoperative congestion.
4. Although the fluoroscope was not used in the above patients, we have used it in others and

appreciate its value. It should be used in all cases of pelviotomy or nephrolithotomy, particularly when a stag-horn stone is to be crushed and removed in pieces.

5. Stag-horn stones can be crushed and removed through pelviotomy and partial nephrolithotomy in cases of intrarenal pelvis in single kidneys as well as bilateral kidneys, with little or no destruction of kidney tissue.

490 Post Street.

DISCUSSION

ROBERT V. DAY, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Dillon has covered the ground so completely and arrived at such sound conclusions that practically nothing else is left to be said, except to stress his terse reminders. Not infrequently we are face to face with a solitary kidney already badly damaged and containing one or more large stones. It has been my fortune, or misfortune, to have had more than a dozen such cases, and they are the source of much anxiety. When the calculus is entirely within the cortex and not producing infection, or is a large stag-horn stone not causing any obstruction, one is tempted to temporize. With a stag-horn stone, it is often wiser, I believe, not to operate if the patient is having no clinical symptoms, either objective or subjective.

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J. C. NEGLEY, M. D. (527 West Seventh Street, Los Angeles).—The résumé of Doctor Dillon's narration of cases, conclusions and summary, would lead one to believe that surgery is the method of choice in calculi of solitary kidneys. He is well supported in such belief, for all three cases with renal calculi were able to leave the hospital and evidenced some improvement. No details are given as to conservative medical and cystoscopic treatment, so we must conclude they were discarded for surgery.

For myself, I would submit the following observations:

1. Each case of solitary kidney containing a calculus or calculi is an individual problem for which there is no standard treatment, surgical or otherwise.

2. Small or medium-sized calculi in a well-drained portion of kidney parenchyma or calyces may be surgically removed with safety and benefit.

3. Calculi of any size, in a poorly drained portion of kidney parenchyma or calyces, if removed surgically have a tendency to recur.

4. Surgical removal of calculi does not always relieve destructive inflammatory processes nor is the patient always relieved of distressing symptoms.

5. The need of surgical intervention is often obviated by absolute rest with foot of bed elevated eight to twelve inches, no pillows, introduction of ureteral catheter with pelvic lavage, urinary antiseptics, fluids to tolerance, blood transfusions, and other supportive measures.

6. Removal of stag-horn or other calculi that have reached a size sufficient to occupy over half of the renal parenchyma must be accompanied by trauma, with destruction of greater or lesser amounts of kidney substance. During removal numerous portions, microscopic or larger, may be left behind to act as a nucleus for recurring calculi.

7. Immediate surgical intervention is necessary in total or nearly total suppression of urine. Any surgical procedure at this time should include entire decapsulation to provide for increase of tension following operation. To do this, kidney must be dissected from its bed and freed of all adhesions. The question of rib resection must rest with the individual surgeon, and if he feels that in no other way can exposure of kidney be accomplished, then that must be done.

RABIES*

By KARL F. MEYER, Ph. D.
San Francisco

IN the control of rabies in dogs two procedures are considered efficacious. They are (1) restraint and (2) preinfectious antirabic vaccination. *No matter how effective, vaccination alone will never control outbreaks of rabies.* Both methods when used in combination are expensive and require a well planned, rigid and devoted organization which, sooner or later, involves the authorities in numerous unpleasant controversies. Since it is imperative that the stray, ownerless dog and cat be destroyed or held in strictest isolation for at least three to four months, the administration of any antirabic ordinance must operate in a humane and yet ruthless manner. Furthermore, in order to be effective, the undertaking to free a city or county from this dreaded disease must have the whole-hearted and sympathetic support of the people of the community and, in particular, the press.

RESTRAINT MEASURES

1. Under restraint as a preventive procedure against rabies in dogs and cats one usually classifies the following measures:

(a) Licensing of the animals.

(b) Quarantine by locking up the dogs on the premises of the owner.

(c) Leashing and muzzling them when on the street.

(d) Impounding in special kennels provided for this purpose, or

(e) Destruction of the stray dogs.

It is believed that leashing is an effective method. However, experience has taught that evasions are quite numerous.

Muzzling is an absolute necessity in order to prevent the dogs from biting man and dogs. A metal muzzle of the basket type, properly fitted, will insure complete and humane protection, provided the owners are instructed concerning their use. Isolation on the premises without muzzling is of questionable value and can only be recommended as a temporary expedient in badly infected areas.

Under the present existing condition of the epizootic, it is doubtful that the methods of restraint applied to a limited area will accomplish a great deal.

Every effort should be made, by mutual agreement between the health and police authorities of the counties, to introduce control measures from

* The rabies situation in Los Angeles County has recently given health officials considerable concern. Humane and antivivisection society representatives took a prominent part in the hearings before the Los Angeles City Council. In a conference with Dr. Karl Meyer on the certified milk situation, the editor asked him if he would present his views on handling a rabies situation to the Los Angeles City Council, if so requested. This article and a letter in the Correspondence column of this number of California and Western Medicine are the responses to that request.

For interesting rabies statistics received from the health departments of Los Angeles County and of Los Angeles City, see letters in the Correspondence column of this issue of California and Western Medicine, page 69.

the Tehachapi range to the Mexican border. Then again, no action should be taken until the authorities are assured that the impounding of the stray dog may be followed by a sufficiently long period of quarantine to cover the incubation period of the exposed and bitten dogs, which varies from 7 to 150 days for dogs, and 10 to 260 days for cats. In considering the advisability of this undertaking, the authorities must always realize that the net which collects and renders harmless the stray dog will sooner or later collect some pet animal. These victims of the quarantine procedures which must—to repeat—be ruthlessly administered sometimes, serve as a starting point for numerous controversies. The method of restraint has, therefore, remained unpopular in the majority of American communities. Even when attempted with the best of intentions, the method frequently failed since a strictly enforced, prolonged quarantine and impounding ordinance is rarely tolerated by the dogs and their owners. Animal lovers, humane societies supported by an inadequately informed press and its readers, combined with the inherent human aversion against restriction, sooner or later puncture the most carefully planned control campaign and nullify its effectiveness. In a small, densely populated, readily surveyed area, the method of restraint is more readily administered than in territories with a more scattered population. Experience alone must determine the efficacy of this procedure in southern California. Neither precedent nor past information can serve as a dependable guide. Notwithstanding the disadvantages and objections which have been outlined, it must always be remembered that compulsory restraint has twice freed Great Britain from infection. Many communities, aroused by the unnecessary fatal cases of human rabies, have demonstrated the efficacy of a vigorously and fearlessly enforced quarantine, impounding and elimination of the stray dog.

PREINFECTIONAL ANTIRABIC VACCINATION

2. In view of the difficulties inherent to the quarantine methods, health authorities have in recent years advocated the *preinfectional antirabic vaccination*. While the experimental evidence leaves no doubt that various types of vaccines, the phenol-killed or the chloroform-treated induce immunity that may persist for some months, data relative to their efficacy under field conditions are meager and contradictory. In fact, the unbiased observer finds it difficult to judge the extent to which the vaccination has served as a factor in the control of rabies.

However, one conclusion is justified: vaccination will never replace the veterinary police measures. No protective vaccination is 100 per cent successful; failures in dogs with single injections of antirabic vaccine have been reported. The rabid dog or the animal suspected of rabies must be impounded, and the stray dog must be caught and rendered harmless. The same objections which delay and reduce the force of the restraining methods are usually raised against vaccination. As a means to shorten the quarantine and muzzling period or to facilitate its enforcement,

voluntary vaccination with phenol or chloroform treated preparations may receive favorable consideration. The organization of the control measures should include the supervision and compilation of the data on the vaccination by means of a simple reporting system.

APPLICATION OF ABOVE PRINCIPLES

In order to apply the principles here detailed, the following steps must be taken:

- (a) Solicit the support of the people and the humane societies.
- (b) Organize an educational campaign among and through the newspapers.
- (c) Instruct the police force, which will act as the executive branch of the control procedures.
- (d) Issue a muzzling and leashing ordinance.
- (e) Impound or destroy the stray dogs and cats.

Hooper Foundation for Medical Research, University of California.

THE LURE OF MEDICAL HISTORY

COMPARATIVE RELIGIOTHERAPY*

By W. H. MANWARING, M. D.
Stanford University

A bill recently introduced in the California legislature would create a separate medical board for the licensing of "Christian healers" to treat "spiritual, mental, and physical disease" by the laying on of hands, consecrated oil, etc.¹

AT least ten million intelligent and conscientious American citizens today are skeptical of the methods and tenets of material medicine. These millions find their only therapeutic logic in the spiritual concepts of the church. To them material therapy is atheism, a sin for them to employ personally, or allow to be employed with their children.

It is estimated that at least one hundred thousand preventable deaths take place each year as a result of this disharmony between the laboratory and the pulpit.

A popular understanding of the parallel evolution of medicine and theology and of the religious faith camouflaged today in so-called materialistic science might go far to bring about the desired harmony.

PART I

ANCESTRAL MEDICINE PRIOR TO THE CHRISTIAN ERA

Animistic Concepts That Preceded Development of Religion.—The medicinal "hunches" of our prehistoric ancestors were presumably similar to the current native curative arts of the Congo

* Popular medical lecture, Stanford University School of Medicine, San Francisco, January 9, 1931.

¹ This bill was sponsored by Revs. Lombard and McLeod, San Francisco Christian Science practitioners, and by Revs. Cameron and Bussell, Los Angeles representatives of the American Federation of Healers. The bill, however, was tabled by the Senate Committee, March 30, 1931. (Associated Press dispatch.)

and the Orinoco. Such healing wizardries are based on the animistic concepts of nature, a pseudoscience that preceded the development of religion.²

Water flows. It is therefore, alive. Its surface is agitated by the thrown stone. Water, therefore, has sensation. This sentient liquid buries itself in the sand to escape the tropical sun, thus revealing its rationality.

Water drives out the choking demons of thirst. It is thus a friend of man. But it drowns the unwary and is, therefore, a potential enemy. Wild or angry water is thus a logical pathogenic virus, inundating human flesh in anasarca and serous exudate. Friendly or domesticated water is an equally logical therapeutic servant, drowning or washing away nonaquatic pathogenicities.

The body of man melts to water in perspiration, tears, urine, and saliva. Water is, therefore, human: melted human flesh.

Water, in short, is a conscious, intelligent, potentially human personality which may sleep in the form of ice, dance as waves, semivolatilize to a bird-like fog, or fully dematerialize³ into the great intangible Thunder Bird, general humidity. In each of these four physical states, water is a potential infectious agent and an equally logical living therapy.

Invisible emanations from a nearby lake are aspirated into the human eye and are there condensed into a miniature lake, the primitive concept of vision.⁴ On turning the eyes away, this optically aspirated retinal lake diffuses throughout and becomes a living part of human flesh, the primitive theory of memory.

At will this living memory water may be divorced from solid tissues and recorralled in the human eye, the stone-age theory of visualization. From the eye part of this reassembled memory water volatilizes or is willed to evaporate outward, the ancient theory of optical projection. Or the living lake memory may be outwardly projected from the throat, the spoken name of the lake being a nascent lake spirit motivated by human will. This living word⁵ may be willed to invade enemy ears as pathogenic or carnivorous water, or to surround and penetrate human flesh as a living hydrotherapy.

This aqueous psychoanalysis epitomizes stone-age medicine. Each object in nature is a crystalized or materialized gas or soul, or colony of

souls.⁶ Spirits sleeping in solid parts; wide awake in blood, sap, urine, saliva, and perspiration; keenly alert in respiratory tide, body odors, and plant perfumes; diffusing outward in ever-increasing dilution to fuse with the generalized ether of its clan. Each wild or unfriendly man, animal, plant, and inanimate object is thus a potentially pathogenic demon, or carrier of demons. Won to cooperative friendship, each may function as an equally logical spiritual therapy.

Carnivorous mosquito gas logically devours, dominates, transmutes or transubstantiates human flesh.⁷ This pathogenic ghost is equally logically killed or driven from malarious flesh by loyal friendly ethers from ceremoniously adopted, insectivorous beaks, claws, or feathers. Or it may be coaxed from infected flesh onto loyal juicy mosquitophilic bananas.

Domesticated snake oil ceremoniously married to human bones logically grafts hypermobile snake spirit onto rheumatic joints. Moleskin ethers logically become symbiotic with human vision, engrafting onto the human eye the mole's ability to see in the dark. The medicinal gong logically broadcasts loyal, epidemiologically trained metal-spirit to battle with prowling miasmas.

Therapy by Captured Personality Ethers Which Have Escaped at Death.—In selecting such apparently lifeless objects as beaks, claws, and feathers as sources of therapeutic gases, jungle science was well aware that it was dealing with dormant drugs, the wide-awake personality ethers having escaped at the time of death. Methods were, therefore, devised for the capture of these highly alert, disincarnate therapeutic emanations.

Such methods are well illustrated by the jungle technique of solar transubstantiation, one of the simpler fire-making ceremonials. Facing the sun, the technician first fills his eyes with the radiated ghost of the Father of All Fire. He then directs his gaze to the fuel, optically projecting the captured retinal image onto the tip of the fire drill. As the drill revolves it reels in this optically projected sun-gas, till sufficient fire-spirit is collected on the drill to digest, eat, transmute, or transubstantiate the adjacent fuel.

By somewhat similar techniques human, animal, plant, and mineral⁸ ghosts are captured and corralled in convenient objects. Domesticated wild-cat souls devour miasmatic rodents. Tamed tree-spirits shield from the tropical sun. Captive ethers from the dawn drive away the ever hungry anthropophagic spirits from the west.⁹

² Frazer, J. G.: *The Golden Bough*, Abridged Edition, Chap. IX, p. 117. 1927.

³ "Evaporation" and "dematerialization" are synonymous in primitive science. "Spirit," "ghost," "ether," and "gas" are also interchangeable. Our modern differentiations date from the middle of the seventeenth century, when it was shown that air is a material substance, having definite weight and a definite coefficient of elasticity. Singer, C. *Short History of Medicine*, Chap. IV, p. 125. 1928.

⁴ For our own classical versions of this spiritual theory of vision, see: Allbut, C., *Greek Medicine in Rome*, The Fitzpatrick Lectures on the History of Medicine, Chap. III, p. 103. 1921.

⁵ The concept of sound as a living spirit did not disappear from medieval science till the demonstration of material nature of air. The transition is well illustrated by Bacon's argument that it is not the Divine Spirit broadcast or dematerialized from consecrated temple bells that controls the storm, but "concussions" in the elastic atmosphere. See: Frazer, J. G., *Folklore in the Old Testament*, Chap V, p. 426. 1923.

⁶ From two to seven independent or mutually dependent spirits are at times pictured in each object. When an American Indian describes his "soul" as twelve inches high, he usually refers to but one of his four to seven corporeal ghosts. This multiplicity of somatic essences reached its height in ancient Egypt, thirty-six spirits (or functions) then being pictured in the human body.

⁷ Malaria is known as "mosquito disease" by certain South American Indians. Contagious ophthalmia was "fly infection" in ancient Egypt. Sleeping sickness is infection with carnivorous "fly ghosts" in equatorial Africa.

⁸ For mineral ghosts or "spirits of inanimate objects," see Karsten, R., *The Civilization of the South American Indians*, Chap. II, p. 329.

⁹ For the "guardian spirit therapy" of North American Indians, see: Goldenweiser, A. A., *Early Civilization*, Chap. X, p. 184. 1922.

Such captive ethers not only function as individual antitoxins, but may be united, synthesized or trained to coöperative teamwork. Thus united they form a giant polyvalent spiritual therapy. A medicine bag may contain a dozen captive ghosts, ceremoniously fused to form a unit medicinal ether, capable of conquering a wide range of visible and invisible pathogenicities. Fattened with sacrificial meats, reinforced with human blood, such a synthetic polyvalent spirit may be increased in size, strength, and wisdom, till it becomes the major therapeutic dependability of a tribe.¹⁰

Numerous logical techniques are employed to administer adequate doses of such a healing god.¹¹ Ceremoniously transubstantiated into loaves, an effective dose of its curative spirit may be swallowed or applied directly to ailing human flesh.¹² In certain primitive cultures the sacramental loaf¹³ is supplied with eyes, ears, heart and genitalia, and the transubstantiated god afterward dissected into organ-specific alkaloids. The spiritually charged eyes thus become logical specifics for failing vision. The consubstantiated legs logically expel the carnivorous ethers of rheumatism. The blessed genitalia logically restore lost manhood, or may be used in the ceremonious fertilization of virgins.

Results Attendant Upon Hybridization of Medicinal God with Domestic Animals and Human Mates.—To increase the loyalty of a medicinal god it was often ceremoniously hybridized with domestic animals or with selected human mates. Bulls sired by an astronomical ether bellowed defiance to oncoming storms. Virgins transubstantiated with botanical spirit telegraphed reproductive urge to nearby crops. Solar-hybridized youths drove back nocturnal spiritual anthropophagi.

From such a local hybrid an effective dose of therapeutic spirit is logically transferred by physical contact, by saliva, urine or feces, or by aural, optical or telepathic aspiration. The dung of bovine celestial hybrids is today the supreme antiseptic of a hundred million Hindus, the blessed bovine urine their major spiritual purification. The dung of dogs ceremoniously hybridized with the healing god Aesculapius was one of the most potent drugs of ancient Greece.¹⁴

¹⁰ For the synthetic origin of early pagan gods, see: Frazer, J. G., *The Golden Bough*, Chap. XXVIII, p. 315. 1927.

¹¹ Jayne, W. A., *The Healing God of Ancient Civilizations*, Yale University Press. 1925.

¹² For the Aztec therapeutic transubstantiation technique, see: Frazer, J. G., *The Golden Bough*, Chap. I, p. 488.

¹³ In Central America this edible therapeutic idol was usually made of a mixture of cornmeal and honey or of cornmeal and chicken blood.

¹⁴ Jayne, W. A., *The Healing God of Ancient Civilizations*, pp. 285, 411. This use of sacramental dung as a logical carrier of "spiritual bacteriophage" was based on the primitive theory of digestion and excretion and had a hundred other equally logical applications, such as in adoption, naturalization, and marriage ceremonials. This passive reinforcement of the individual's own "spiritual antitoxins" with divine "fecal antiseptics" must not be confused with numerous other primitive fecal therapies, oral or cutaneous vaccination with vermin dung or with the dung of noxious insects, for example, actively immunizing the individual against specific or group-specific infectious demons.

Instead of increasing divine friendship, however, such hybridization often had the opposite effect, the pampered healing god enslaving his would-be human friends, demanding daily potions of human blood, periodic feedings with quivering animal or human hearts, commanding constant ceremonious vaudeville, and punishing ritualistic neglect. From this wholly unwished-for result there was born a new theory of disease, disciplinary pathogenesis, purposeful metamorphosis of the healing god into a septic devil, or purposeful withdrawal of his antiseptic spirit, his human slaves abandoned to ever-hungry malignant ethers. Logical prophylaxis thus became bribery, flattery, and cringing conformity to antiseptic will. Logical therapy was human blood, ripe virgins, and special vaudeville, that the angry celestial ether might be lured back into the village and recorralled in his local images.

One special technique of world-wide use was the therapeutic apology or medicinal confessional. In subtropical America this often took the form of a whining enumeration of wholly imaginary sins or disobediences, pretended demonic interference with wished-for obedience to divine commands. By Indian logic, the self-centered god might not be interested in mere human aches and pains, but would exert himself to drive out demons reducing tribal efficiency in his prescribed ritual. He would thus inadvertently scare away minor pathogenicities.

More civilized heathen gods, however, often coöperated with pagan clinicians, had regular office hours and regular fees for consultation service. Revelation diagnosis and revelation therapy thus became routine methods in medical practice, the friendly healing ether speaking in thunder, or in coded message on sacrificial livers.

Hygienic failure of such a civilized pagan deity was often excused and attributed to his illness or senility. Celestial catharsis was a logical antidote, formal physicing of the incompetent invisible therapy through his transubstantiated symbols. Celestial tonics, dosings with alcohol or cocaine, ceremonious delousing with tobacco smoke, and divine rejuvenation with human blood, semen, pulsating hearts, or other fragments carved from living human flesh.¹⁵

If, however, hygienic incompetence was attributed to celestial laziness, more heroic methods were at times employed. Transubstantiated into his idols, the balky healing spirit was lashed with whips, defiled with dung or tortured with fire, till he promised effective medicinal service. Still refractory, he was detransubstantiated, and banished to hell.¹⁶

Such extreme disciplinary measures, however, were not without danger. A smarting antitoxic ether thus excommunicated and forced to consort with the anthropophagi of the underworld might well return with an acquired lust for human flesh.

¹⁵ For such rejuvenation techniques on the Western Hemisphere, see: Karsten, R., *The Civilization of South American Indians*, Chap. XII, p. 377.

¹⁶ The healing gods were thus disciplined in ancient Egypt. Even the Supreme Buddha is subject to therapeutic discipline today in central Asia.

One banished healing god of ancient Egypt thus returned to captain later pestilences and gangrenes.

To avoid this danger, radically different techniques were at times employed, surrender therapy, formal flattery, bribery, and fake servitude to an unconquerable miasma. In ancient India the entire nation thus bowed in pseudoadoration to smallpox, temples, and human servants were consecrated to her service, each communicant being marked with the sacramental vaccination scar, that the carnivorous demoness might recognize those on whose flesh she was honor-bound not to feed.¹⁷

(Part II will be printed in next month's issue.)

¹⁷ In ancient Rome symptoms, rather than diseases, were thus propitiated, the demonesses of pain, fever, stench and itching, for example. See: Jayne, W. A., *The Healing God of Ancient Civilization*, pp. 399-402, 461-464.

CLINICAL NOTES AND CASE REPORTS

THE MERTHIOLATE—A NEW ANTISEPTIC*

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A NEW antiseptic, commercially called merthiolate,¹ has appeared within the past few months. Such agents are so numerous that it is difficult to weigh their respective merits. This particular substance is put out by a reputable manufacturer of biologic products, and is sponsored by one of the staff, a man of wide scientific and practical experience. It is the purpose herein to summarize certain facts claimed for merthiolate and to present concisely some of the accumulating local observations regarding this product.

PHYSICAL CHARACTERISTICS

Merthiolate is one of a series of organic mercury compounds synthesized in Chicago during recent years.^{2,4} It is the sodium salt of ethylmercuri thiosalicylic acid, $C_2H_5HgSC_6H_4COONa$, apparently the ortho compound. It is a white crystalline substance,³ 49 per cent mercury. It is precipitated by salts of heavy metals and by acid, but it is soluble, even one part to one part, in water, serum, and the ordinary biologic solvents. It is miscible in soap and alcohol. It is very slightly ionized. In solution it is nearly colorless and tasteless. It is said to be stable in ordinary concentrations of germicidal strength. It has been the experience locally, however, that ten per cent and one per cent aqueous stock solutions crystallize badly on standing for some days under ordinary laboratory conditions. This physical property merits close inspection. Although biologic tests are not sufficiently sensitive to measure a minor reduction in efficiency of merthiolate, due to this crystallization, some reduction should be expected. Furthermore, if crystallization occurs, even though macroscopically imperceptible, in weak merthiolate solutions used for parenteral injection (vaccines or serums preserved with this

substance, direct intravenous injection of merthiolate, et cetera), a pronounced irritation might be expected. In human intravenous injections³ recorded, local inflammation "due to infiltration" was noted in two of twenty-two cases.[†]

TOXICITY

The toxicity of merthiolate is low. No work locally has involved doses which approach the toxic limit. Rabbits are said to withstand 25 milligrams/kilo, rats 45 milligrams/kilo, and mice somewhat more. If the limit is exceeded, the pathologic picture is that of mercurial poisoning. Dogs withstood two milligrams every third day for twelve doses. Guinea-pigs injected with five cubic centimeters into the peritoneal cavity showed severe reactions with 1:1000 dilutions, moderate with 1:2000, and none with 1:4000 and 1:8000 dilutions. The advocated strength in serums and vaccines is 1:5000 or 1:10,000. In man, twenty-two patients have been injected intravenously with one per cent solution, except as noted above, with no reaction. The maximum single dose was 50 cubic centimeters, and the greatest total dose was 180 cubic centimeters given in five doses.

The action on bacteria indicates a high degree of activity. References state that the typhoid bacillus is killed by 1:3000 dilution in ten minutes; the staphylococcus by 1:4000 in the same time. Heavy bacterial suspensions are killed usually in one day at dilutions of 1:10,000 without loss of antigenic properties. Dilutions of 1:1,000,000 inhibit the growth of ordinary bacteria. The substance diffuses in agar to a greater extent than some disinfectants.

Local tests have included no direct clinical applications, but they support the claims regarding germicidal or bacteriostatic activity. Some observations on vaccines and serologic tests have also been made.

The phenol coefficient was estimated at close to 200 (F. S. Paine) as compared to the more conservative figure (40 or 50) stated by Powell and Jamieson.

Heavy bacterial antigen suspensions were killed readily. *Bacterium typhosus* was killed in one per cent concentration of organisms by 1:9000 merthiolate in less than twenty-four hours (E. Lewis). Still heavier suspensions of undulant fever organisms were killed by 1:10,000 merthiolate in less than twenty-four hours (L. Veazie). This has been repeated by others many times. In broth, dilutions as high as 1:40,000,000 inhibited staphylococcus growth for forty-eight plus hours. In agar, 1:5,000,000 was the lowest dilution which permitted bacterial growth; higher dilutions inhibited the staphylococcus (H. Prichard). No evidence is at hand to indicate that this substance, used 1:10,000, in preservation of immune serums has any objectionable features. The preservation is perfect, and there is no apparent clouding, precipitation, or discoloration.

OTHER OBSERVATIONS

Although there exists no accepted technique for germicidal tests on fungi, a preliminary test

* From the departments of bacteriology in Berkeley and in the Medical School, and the Hooper Foundation, University of California.

† A recent communication states that precipitation occurs only in unbuffered solutions.

with a ringworm fungus, *Trichophyton interdigitale*, indicated that 1:10,000 merthiolate would kill the fungus in five minutes, whereas 1:100,000 failed to do so. The same was true of the fungus of coccidioidal granuloma (R. A. Stewart). A mold (*Penicillium*) causing some difficulty in a hospital lubricant, was inhibited in agar by 1:10,100 merthiolate, and partially but not completely by 1:100,000 dilution (M. S. Marshall). The *Monilia* of thrush is, according to experiments in progress, more readily killed or inhibited by merthiolate than by gentian violet in similar concentrations (E. Isnardi).

No information has been sought regarding the activity against protozoan or helminth parasites.

In serologic procedure, the germicidal activity of merthiolate has indicated its value in the preparation of vaccines or antigens. Agglutination by means of a good antiserum active against certain intestinal pathogens indicated that merthiolate killed antigens were definitely superior to the usual formalin or heat-killed antigens in the titer demonstrated (E. Lewis). The same was true of undulant fever bacteria. Furthermore, on the injection of merthiolate-killed antigen in rabbits, a definitely higher titer was secured than when other vaccine suspensions were used, not only tested against similar antigen but against routine antigens as well (F. Paxton). The use of merthiolate in preserving serum thus far has indicated no effect on the potency. It was used as a preservative on an unstable gland extract without apparent effect which could be attributed to merthiolate (C. L. Connor).

SUMMARY

It may thus be stated, in summary, that the merits of merthiolate as a preservative (*e. g.*, 1:10,000) in general laboratory procedure, are fairly well established. Its power to inhibit growth in useful concentrations is great. Used for antigens, either for immunizing or for testing sera, it is equal and probably superior to other common preservatives. It is being tested in various laboratories as a preservative for biologic products, some of which are on the market at present. The possible effect on potency, the possibility of crystallization in minute amounts, and perhaps the possible difficulties with mercury under certain conditions, make necessary some reservation of opinion at present, but the results thus far are uniformly favorable. These facts, together with the apparent low toxicity of merthiolate, suggest a wider use in medical practice, more or less experimentally for the time being, in such conditions as local disinfection, preoperative procedure, and in others of the innumerable applications of antiseptics.

Hooper Foundation for Medical Research.

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TWO NEW INSTRUMENTS OF PHYSICAL DIAGNOSIS

A STETHOSCOPE AND ELECTRIC RESONATOR

By JULES H. MASSERMAN, M.B.
San Diego

IT is the purpose of the present communication to describe the use of two new instruments of physical diagnosis as they have been employed in the admission room and wards of the San Diego County General Hospital. This is a preliminary report.

THE DOUBLE STETHOSCOPE

This is easily constructed from the ordinary Bowles type stethoscope by substituting for the three-way central connection, a four-way connection, to the extra lead of which a rubber tube bearing another Bowles chest piece is attached. This arrangement renders it possible simultaneously to auscultate homologous portions of the right and left chest, the sound from each receptor being conveyed to both ears.

The bilateral, simultaneous auscultation is the basis of a new departure in diagnostic technique, viz., the differential timing of the breath sounds from corresponding lung areas. In practice, the diaphragms are applied to their corresponding sides of the chest alternately until the ear can differentiate the sounds emitted by one lung from those of the other—a distinction easily made, especially when one lung is pathologic. The receptors are then applied to the homologous portions of the chest simultaneously, and, the character of the sounds being disregarded, special attention is paid to the timing of the onset and cessation of the sounds from the suspected lung, as compared with the time of onset and duration of the sounds from the other lung.

This procedure, in our later work, was aided by an even simpler arrangement of the stethoscope. A Bowles chest piece was attached directly to each ear-piece tube so that each side was auscultated by one ear only. While the volume of sound was less, a little practice with the technique soon trained the ears to orient the sounds even more easily.

By repeated clinical test, it has been found that the diagnosis of the following conditions may be aided in the indicated manner:

1. When the sounds of the pathologic side begin by a distinct interval later than those of the sound side, the following conditions may obtain: Unilateral paralysis or fatigue of the diaphragm or other respiratory muscles; partial pneumothorax; obstruction (secretion, stenosis, spasm) of the bronchus supplying the affected area; pulmonary consolidations or cirrheses; and atelectasis. Prolongation of the expiratory phase of one side, as compared to the other, is almost pathognomonic of unilateral bronchial obstruction from any cause.

2. When the sounds of the affected side begin earlier, the following are suggested: Diaphragmatic adhesions; thickened pleura, or any increase

in the mechanical advantage of the diaphragm, such as may occur in scoliosis, movable sub-diaphragmatic masses, etc.

3. By placing one receptor over the apex and the other over the aortic or pulmonic areas, the timing of cardiac murmurs, friction rubs, etc., is facilitated. With the receptor over the aortic and pulmonic areas, respectively, any asynchronicity is easily appreciated.

4. Other uses of the instrument readily suggested themselves. Thus dilatation or partial stenosis of the esophagus may be indicated by a prolongation of the normal interval between the swallowing gurgle heard through one receptor on the larynx, and the later gurgle perceived by the other placed over the cardia of the stomach. In a similar manner the progress of a peristaltic wave of the colon may be noted by placing the receptors at a given distance over that organ and timing the sounds. It is apparent that our short use of this simple instrument has far from exhausted its possibilities, others of which will readily occur to the intelligent clinician.

A review of the literature, preparatory to the submission of this article, revealed that Boston,¹ in 1927, had also reported on the use of a "double stethoscope," equipped with a valve which allowed the sounds from one Bowles receptor to reach the ears immediately *after* those of another applied to the opposite side of the chest. His instrument, however, was primarily meant for teaching purposes, and was not intended to employ the principles of *simultaneous*, bilateral auscultation briefly outlined above. The stethoscope here first described, moreover, may also be used (as was the Boston scope) for the purpose of quick comparison of the sounds from the two sides simply by applying the diaphragms to their corresponding sides of the chest alternately during succeeding respirations. With a metal cover over one receptor, the instrument may, of course, be used as a simple stethoscope.

THE ELECTRIC RESONATOR

This apparatus may easily be built by suspending, in a large, wide-mouthed bottle, an electric bell which is connected by wires running through the cork to a switch and two dry cells. Fitted into a hole in the cork is one end of a flexible anesthetic-machine tube, the pneumatic anesthesia mask of which is held to the face of the patient. By this means the sound of the bell is conveyed, with fair insulation, to the trachea and lungs of the patient. If a large thermos be substituted for the wide-mouthed bottle, the insulation of the sound may be made fairly complete. The bell is preferably one of low pitch, to increase the pulmonary conduction.

The principle is obvious. The constant, even monotone of the bell is substituted for the intermittent, variable, and sometimes unobtainable voice of the patient. The sound is conveyed through the trachea, bronchi, and pulmonary tissues, and follows the same laws of transmission, propagation, reflection and absorption, as does the spoken voice. In practice the patient is in-

structed to breathe through the mouthpiece, and the bell is switched on, while a stethoscope is run up and down the chest. In this manner areas of increased, diminished or altered sound transmission may be accurately bounded, finer differences in the auscultated monotone being readily appreciated. Again, the two sides may be easily compared by alternate use of the receptors of the double stethoscope, as above described.

CONCLUSIONS

Two new instruments are presented. It is hoped that further experience will confirm their aid in the difficult art of physical diagnosis.

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1. Boston, L. Napoleon: Clinical Uses of the Double Stethoscope, J. A. M. A., 88:1796 (June 4), 1927.

The Exorbitant Price of Radium.—The *Journal of the American Medical Association* recalls that the journey of Madame Curie to the United States was followed in France with a high degree of interest, and everyone has been profoundly touched by the hearty welcome that she received from President Hoover, the universities and the American press. The gram of radium which was solicited is destined, not for France, but for Poland, the native country of the widow of the French physicist. The press remarks, in this connection, that Madame Curie did not receive the gram of radium in kind but a check with which to buy it, and that she has again protested against the exorbitant price at which the metal is sold today. Since the discovery of the rich deposits of uranium in Katanga province of the Belgian Congo, the problem of supplying the world with radium appears solved, especially since radium is indestructible and will serve indefinitely to furnish emanations and radiations. It has been reported that the factory at Oolen, in Belgium, which treats the mineral brought by the shipload from Africa, has decided to place a limit on its production, in order to prevent a decline in the price, which ranges at present between 600,000 and 800,000 francs per gram. In this connection, attention has been called to the fact that the buyers of radium have heretofore been chiefly laboratories and hospitals, and, furthermore, that the wealth thus acquired by the holders of the monopoly has had its source in the public and private benevolences with which the laboratories and the hospitals are supported. If radium were sold at a much lower price than its present actual value indicates, now that the mineral from which it is derived has been found in abundant quantities, a supply would be available not only in a few large institutions richly endowed by philanthropists but in all the hospitals and laboratories of the world. The speculative profits realized by the holders of the radium monopoly are, therefore, viewed here with severe disfavor, for the reason that they are obtained at the expense of human suffering, disease and death. It has even been suggested by some that a petition be addressed to the health council of the League of Nations, requesting it to intervene in the matter. In addressing the Académie des Sciences recently, Professor Matignon formulated an urgent protest on the subject. As for Madame Curie, her laboratory possesses only the radium given by Dr. Henri de Rothschild. Not to be obliged to resort to begging in order to obtain radium for the Institut de Cancer, she decided to resist the demands of the radium monopoly and to manufacture radium herself. The city of Paris has granted her a plot of ground and the sum of 1,500,000 francs (\$60,000) for the installation of her factory, and the government has allowed her a large subsidy. She hopes, in this way, to be able to serve the cause of humanity by thus helping to lower the price of radium.—*Medical Standard*, October 1930.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS.

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

THE SIGNIFICANCE OF JAUNDICE

STANLEY H. MENTZER, SAN FRANCISCO.—Jaundice has been of interest to mankind since history began. To the early Arabians and Egyptians it was a sign from the gods. Its possessors were revered or held in terror. Later they became objects of horror and disgust. It is natural that medical men took an unusual interest in these patients, but the significance of their jaundice was not understood.

Icterus is of no less interest to the medical man of today, and because of its striking presentation ensnares the interest of the layman as well. But though the ancients were troubled about the significance of jaundice, the physician of today is often unable to interpret its import.

Jaundice is one of the major diagnostic features of common duct stones; however, stones may be present in the choledochus when jaundice is absent. This was first shown by Courvoisier in 1890 and later by Fenger. But few probably realize how frequently this occurs. Judd, in 1930, stated that 23 per cent of 160 patients operated upon for common duct stones had never been jaundiced.

The causes of jaundice are too numerous to enumerate. Most texts list seventy or more. These lesions may lie within the liver or bile ducts, or they may arise from the walls of the biliary tree, or may come from extraductal diseases producing angulations, adhesions or compression defects. The jaundice may arise from systemic disorders or accompany acute fevers or infections. Numerous poisons produce jaundice and some blood dyscrasias are accompanied by it. In addition, jaundice is occasionally of unknown origin as in icterus neonatorum and icterus gravis. By our present methods of diagnosis, the cause of jaundice in many of these cases cannot be detected. This is true in the painless jaundice due to common duct stones, or catarrhal jaundice and arsphenamin jaundice when there has been abdominal pain.

Numerous tests have been devised to aid in the detection of jaundice. Some of these date back fifty years. Modern refinements have produced the icteric index, the Van den Berg, and spectrophotometric methods. In addition, dye elimination tests, carbohydrate and protein tolerance tests of liver function have also been elaborated. The detection of urobilinogen in the stool and urine is of importance, and the bile salt tests of Brulé may be of some aid. The presence of bile pigment in the duodenum or in the stool is often of major significance. However, all of these tests are subject to error. Singly they may be of little value, but when used in conjunction with the clinical history, physical examination and other

laboratory aids, they may be diagnostic. They are not by any means infallible, however. Even the absence of urobilinogen in the urine does not necessarily indicate obstructive jaundice as has been previously taught, for it is known that jaundice may occur when the obstruction from common duct stones is incomplete.

Although many advances have been made in the study of jaundice during the past ten years, its significance is still often obscure. Icterus is sometimes absent when the physician anticipates it, and it is frequently present when its significance is of minor importance. Abbe, thirty years ago, stated, "Jaundice cannot be considered as pathognomonic of, or constant in, any but the gravest obstructions in the common duct." A slight icterus is often discounted by the physician as not a subject for anxiety, while, as a matter of fact, the gravest lesions may have made great progress while the physician is waiting for other symptoms to develop. Too much emphasis cannot, therefore, be laid upon slight phases of jaundice, for it is only by the early recognition of the graver diseases that the physician or surgeon may opportunely step in to save life.

In résumé, therefore, I might say that jaundice may be but a stepping-stone in arriving at the final diagnosis; or it may be the cornerstone on which the ultimate structure rests, or it may indeed be the keystone that maintains the diagnostic arch. Unfortunately it is sometimes but punice stone, unimportant and disintegrating under the pressure of other more significant data.

* * *

GEORGE H. HOUCK, SAN FRANCISCO.—An attempt must always be made to explain the existence of jaundice, but when this symptom appears the physician is often baffled both by the large number of disease conditions associated with jaundice and by the realization that the symptom may be of slight significance or of vital importance. The actual recognition of slight jaundice is difficult at times, and is frequently missed under insufficient or artificial light. At times it is erroneously diagnosed in patients who are pallid, or in those with collections of subconjunctival fat. Most patients with carotinemia have been considered jaundiced before the true nature of their pigmentation was discovered.

It is not possible to discuss the metabolism of the bile pigments within the limits of this department. However, in arranging a classification of jaundice it is convenient to make it correspond with what we know of the chemistry of bilirubin. The essential point is that in jaundice caused by obstruction the bilirubin has passed through the polygonal cells of the liver. But jaundice may also be due to bilirubin that has not passed

through these cells, and it is possible to differentiate these two varieties of bilirubin by relatively simple chemical tests. Perhaps the most convenient classification of jaundice is that devised by McNee:¹

Obstructive hepatic jaundice, in which bilirubin is prevented from escape by obstruction of the bile tract. This bilirubin has passed through the polygonal cells and is reabsorbed into the blood stream.

Hemolytic jaundice, in which the polygonal cells do not function normally, and in which the pigment passes directly from the Kupffer cells to the blood. Somewhat the same effect occurs if, through excessive blood destruction, pigment is offered to the polygonal cells more rapidly than they can pass it through to the bile capillaries, and a portion is then absorbed directly into the blood stream.

Toxic and infective hepatic jaundice, in which the mechanism producing jaundice is a combination of the two previous forms, there being both obstruction and direct absorption of bilirubin.

This classification aids us in the interpretation of the van den Bergh reaction performed upon icteric sera. In jaundice due to obstruction there is an immediate development of color, but in sera from patients with hemolytic jaundice there is definite delay. Both elements are present in the biphasic reaction obtained in toxic and infective hepatic jaundice. The reaction may be modified so as to serve as a quantitative determination of the concentration of bilirubin in the blood. This last determination, however, is more usually performed by a direct comparison of the yellow color of a jaundiced patient's serum with standard solutions, the result being expressed in arbitrary units and called the *icterus index*. In order to secure reliable results, blood specimens must be protected against hemolysis in both the van den Bergh reaction and in the determination of the icterus index. From the use of these methods we now know the bilirubin content of normal serum and the renal threshold value. The most significant clinical advance made possible by these methods has been the recognition of latent jaundice.

However, when confronted with frank jaundice the physician but rarely has the benefit of the van den Bergh reaction, and must consider the age of the patient, the presence or absence of pain and fever, and the amount of jaundice. If from the presence of bile pigment in the urine and its absence in the stools we believe the jaundice due to obstruction of the biliary tract, it becomes necessary to distinguish between cholelithiasis and malignant disease. A painless progressive jaundice is almost always due to neoplasm, either through obstruction of the common duct or by obstruction of the intrahepatic ducts by metastatic tumor. An exception to this rule is the so-called catarrhal jaundice which is usually seen in young patients with gastro-intestinal symptoms. A palpable gall-bladder in jaundice is almost always an indication of neoplastic obstruction (Courvoisier), while the gall-bladder is rarely

distended when the obstruction is due to cholelithiasis.

Hemolytic jaundice is more usually chronic and slight in degree, but may be acute, as in paroxysmal hemoglobinuria or in massive hemolysis following severe snake bites.

The forms of jaundice seen in early pneumonia, typhoid fever, or septicemia frequently cause confusion, but emphasize the frequency with which jaundice may occur in the acute infections. The liver does not escape in severe hyperthyroidism, and this toxic damage is called to mind by the mild jaundice which is seen in some patients.

* * *

JOHN V. BARROW, LOS ANGELES.—Clinical jaundice signifies the inability of the system to rid itself of bile or bile products. The fault may lie in a diseased condition of the eliminating mechanism, in the overactivity of the bile-producing mechanism, or in the blocking of the terminal excretory bile ducts. In any instance jaundice signifies a serious condition and its termination is more or less a conjecture.

As a quantitative measure of jaundice such tests as the icterus index are helpful both diagnostically and therapeutically. Diagnosis must be further aided by physical findings and signs. Pain and tenderness over the gall-bladder or masses in that area always bring up the question of cholecystitis, cholelithiasis, cholangitis, malignant growths, and simple pressure by adnexal inflammations. Inflammatory processes from the pelvis and from the bowel may at times block the bile ducts sufficiently to interfere with bile elimination.

If the mechanical findings are those which only surgery can remove and, therefore, are such that amelioration without such proceedings will not occur, the delay in operative work is inimical to progress, even in the face of jaundice. In conditions where the smaller bile ducts and the liver tissues are involved, as in hepatitis and cholangitis, then the use of conservative medical measures as diet, alkalies, bowel elimination, plenty of fluids, and rest are the great essentials. To these remedies may be added drugs such as the phosphates, bile salts, ipecac, and probably endocrine therapy. In this connection it is well to state that ipecac and its derivatives, sensibly administered over a few days' time, are probably the greatest remedial measures. This treatment is especially effective where the infection originates in the colon and involves the liver. When the reticulo-endothelial system is involved and there is systemic reaction in the blood-forming organs, as in pernicious anemia and the leukemias, then therapy such as liver, pig's stomach, and other blood-building aids are of great benefit.

The clinician has a serious obligation on his first visit, or at least during the early diagnostic period, for at this time needful surgery invoked is life-saving, and medical measures when needed are equally important. The plan of treatment may need to be as conservative as the diagnosis. The practitioner of medicine must always regard clinical jaundice as extremely important.

¹ L. McNee, J. W.: Quart. Jour. Med., 16:390, 1923.

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EDITORIALS*

GOVERNOR ROLPH SIGNS A. B. 477 (NIELSEN) FOR STATE MEDICAL LIBRARIES

California State Medical Library Bill (A. B. 477—Nielsen) Was Signed by Governor James J. Rolph, Jr., on June 9, 1931.—The date of June 9, 1931, is one which should have a place in the annals of the California Medical Association, for on that day Governor James J. Rolph, Jr., signed A. B. 477 (Nielsen), thus enacting into law the recent act of the legislature which provides for the institution and maintenance, under the University of California, of a state medical library having major branches at San Francisco and Los Angeles.

For this approval which Governor Rolph gave to the state medical libraries act, the people of the State and the medical profession also, have reason to be grateful. Such medical libraries should and no doubt will become real factors in the betterment of the public health in California and in the maintenance of high educational standards and activities.

In last month's (June) issue of this journal, page 417, a brief history of this particular legislative act was sketched. To those who were giving special attention to the measure, it was a great relief when Governor Rolph attached his signa-

ture to A. B. 477, and our thanks are extended him for giving his approval to the measure.

* * *

Text of the Bill Is Printed in This Number of California and Western Medicine.—The full text of that act, for the convenience of those readers who are interested, is printed in the Miscellany department of this number of CALIFORNIA AND WESTERN MEDICINE (page 68).

Details concerning the institution of these state medical libraries cannot be given at this time, because the act will not become operative until September 9, 1931, after which time President Robert G. Sproul of the University of California will no doubt call his advisory committee together to discuss ways and means whereby the largest and most efficient type of service may be instituted.

* * *

The State Library Act Also Provides for "Exhibits."—A perusal of the measure will indicate its broad scope. The library work can be carried on not only through books and other publications but through "exhibits." In other words the educational activities, insofar as medical and public health education are concerned, are not solely restricted to books and publications. In our present day and for the future, such latitude is especially desirable; and in this instance it is hoped will work out to definite advantage in public health work. Exhibits which can be used in the education of members of the medical profession, can be made valuable also to members of the lay public, if properly presented. As Doctor E. Starr Judd of the Mayo Foundation, in his this year's presidential address to the American Medical Association (*Journal American Medical Association*, June 13, 1931, page 2007) stated:

"The idea of medical education for the public is not a new one, but the importance of it is more fully realized now than it was in former years The consensus among members of the medical profession generally is that some sort of publicity should be supplied by which the public will be made to understand the nature, the purposes and the results of the efforts made by scientific medicine for prevention and control of disease."

A library exists for the better dissemination of human knowledge, and since exhibits of scientific studies promote the dissemination of such knowledge it is possible that the provision of exhibits in the California State Medical Library Act may be productive of much good.

* * *

Major Function of the State Medical Libraries Will Be to Provide a "Package Library Service."

—So far as the editor knows, it is not the intention to use any of the fifty thousand dollar appropriation for the erection of buildings, because the University of California fortunately can utilize some of its present housing facilities. Nor probably will it be deemed desirable to have reading rooms in San Francisco and Los Angeles, since such reading room facilities are quite ample at the University of California, Stanford and the

* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column which follows.

Barlow medical libraries. It may be stated that the original intent of the plan was to have the state medical library, through its major branches at San Francisco and Los Angeles, to act more particularly as a distributing agency for the publications in the three libraries just named, through what is known as a "package library service." In other words, the thought was to make it possible for all medical men and women in California to feel perfectly free, as tax paying citizens, to avail themselves of the privileges of this state institution, which through the state university, would bring to all licensed physicians and surgeons who so requested, the latest medical literature on any indicated subjects.

The advisory board, in addition to President Sproul of the University of California, will consist of four physicians who are in active practice, each of whom has had considerable organization and institutional experience. Therefore it may be taken for granted that the plans of procedure recommended by them will be of a practical nature.

* * *

Thanks to All Who Aided in the Passage and Approval of the State Medical Library Act.—In leaving the subject, we wish again to thank all who aided in the passage of Assembly Bill 477. The successful outcome is gratifying not only because of the great possibilities in the Library Act itself, but as demonstrating that with a cause having merit, and with clear thinking and action, much of what seems impossible from the standpoint of possible legislative action may, nevertheless, be accomplished.

RABIES IN CALIFORNIA*

The 1909-1916 Outbreak of Human Rabies in California.—In this journal in 1913 and again in several issues of the year 1916, Dr. J. C. Geiger, then with the Bureau of Hygiene of the California State Board of Health and now with the Hooper Foundation for Medical Research of the University of California, printed several important papers on outbreaks of rabies in California.

From page 315 of the August 1913 *California State Journal of Medicine* (for that was the name of CALIFORNIA AND WESTERN MEDICINE at that time), we quote from Geiger's opening paragraph:

"In an article written in 1910, Black and Powers reported a small outbreak of rabies among dogs in Los Angeles in 1898. They also reported a fatal human case in Pasadena in 1899 and another outbreak of rabies among dogs in the Soldiers' Home near Los Angeles in 1906. In Stimson's report on rabies, published in 1910, California was declared to be one of the states that was free from the disease. In 1909 the present epidemic began to attract attention and two articles by Sawyer show the spread of the disease up to April 1, 1912. The spread of rabies has been continuous and rapid throughout the state. The toll of human deaths has been eighteen and the loss of valuable livestock has been considerable. Organized

efforts have been made to check its progress, but the lack of coöperation on the part of the county officials, and a bitter opposition from other sources, have greatly retarded the work so far. The presence of rabies in any given community will cause considerable excitement and the passage of numerous laws, which in time are forgotten."

From the June 1916 number, page 230, the following:

"The first case of rabies in human beings in California occurred in March, 1899, and was reported by Radebaugh. The remaining cases, thirty-three in all, occurred during the epidemic of rabies that, since 1909, has swept completely through California. Colburn, Black and Powers, Sawyer and myself reported that up to April 1, 1913, the toll of human deaths from rabies in California was eighteen. Between April 1, 1913, and March 31, 1916, there were fifteen cases."

Again from the July 1916 number, page 276, may be quoted:

"Since 1909, and until recently, rabies has been epidemic in California. Despite the dissemination of knowledge in regard to the control of the disease, rabies among animals in California steadily increased. The height of the epidemic has been reached and passed, and rabies may be considered under control except in Modoc and Lassen counties. This is partly due to the peculiar tendency of an epidemic of rabies to spend itself, the measures instituted for control, and the fact that the disease has become endemic in the more populous communities.

"The advent of the disease in coyotes in Modoc and Lassen counties, which was accomplished through infection traveling from Oregon and Nevada, was made the basis of a remarkable campaign against these animals by the California State Board of Health. The financial loss in livestock alone in Modoc and Lassen counties from rabies places this disease in the forefront as the enemy of the cattle and sheep men. Therefore, the prompt eradication of rabies is a necessity, both in city and rural communities, because of the serious element of human danger on the one hand, as shown by the large number of deaths from rabies in human beings in California, and from an economic standpoint on the other, as shown by the experience of Modoc and Lassen counties."

In a supplementary report in the December 1916 number, Geiger stated:

"In a previous article, the number of cases of rabies in human beings in California was reported as thirty-four. A report of two additional cases, making thirty-six in all, is given."

* * *

The Recent Outbreak of Rabies in Los Angeles County.—In the last several months, the newspapers of Los Angeles County have given considerable publicity to a new outbreak of rabies, with one human death recorded therefrom. In the correspondence column of this number are printed letters sent in at the request of the editor, which give some sidelights on the present rabies situation in California. The directors of the State Board of Health and of the health departments of Los Angeles County and City gave early attention to the recent outbreak, and their efforts to educate the public in regard thereto, as is usually the case, promptly resulted in the self-injection into the picture, of representatives and spokesmen of the lay humane and antivivisection and similar societies. In the conferences which were held with the Los Angeles City Council these, rather than medical organizations, seemed to be the dominating elements.

* Editor's Note.—For interesting rabies statistics received from the health departments of Los Angeles County and of Los Angeles City, see letters in the Correspondence Column of this issue of California and Western Medicine, page 69.

Rabies in Great Britain.—For the benefit of readers who believe such lay interference to be typically Californian or Southern Californian, a quotation from an article by David M. Greig, Conservator of the Royal College of Surgeons Museum, Edinburgh, and printed in the *Edinburgh Medical Journal* of December 1930, page 698, may be in order. In his opening paragraph Greig speaks of rabies as follows:

"Perusal of the *Edinburgh Medical Journal* of a hundred years ago, and of other medical journals of the half century preceding that, yields convincing evidence of the frequency of rabies in man. Many of these cases are fully reported in realistic detail which even to the lay mind might picture the illness and death, perhaps the most terrible to suffer and the most horrible to witness. Today, in Britain, rabies to the medical practitioner is almost of merely academic interest, while to the laity the very name of hydrophobia provokes no particular aversion. Yet on the Continent of Europe and in Greater Britain it remains an ever possible occurrence demanding vigilance for its control and ability for its recognition and successful treatment."

And again:

"There are those of us who remember the time well. Mad dogs were only stray dogs, it was said, not pet dogs carefully housed. Hydrophobia never occurred in winter, it was alleged, and, worst of all, it was asserted that dogs muzzled in the summer time were driven mad because, being muzzled, they were unable to slake their thirst. Well may the dogs pray 'Protect us from our protectors.'"

"In 1893, the cases of rabies rose to ninety-three, in 1894 to 248, in 1895 to 672, and then again came public agitation. The 'Rabies Order' was promulgated on March 23, 1897, and the magistrates of the counties and boroughs were left no discretion in the matter. Muzzling was reimposed and by the 'Dogs Order' on May 7, 1897, the importation of hydrophobia from abroad was stopped."

Greig evidently wrote his article in part, as a protest against the efforts of those lay and other fellow Britons of our present hour who are seeking to break down the laws which in past years have protected Great Britain from rabies outbreaks. He speaks of those who were making such efforts as follows:

"Within the past twelve months (year 1930) mistaken dog 'lovers' have written to the papers demanding the removal of quarantine for dogs which they allege can be better looked after by their owners at home, than they can be by strangers among whom they are compulsorily and cruelly immured. But successive governments are taking no risks, if not from the humanity of cynophilia, then from the inhumanity of politicophobia, and the dole-supported voter may loaf on the highway without this additional danger."

* * *

A Rabies Article in This Number of California and Western Medicine by Director Karl Meyer of the Hooper Foundation, University of California. The purpose of writing what has been given above is to call the attention of medical men to this recent outbreak of rabies in Southern California and also to emphasize the desirability of reading an article from the pen of Director Karl Meyer of the Hooper Foundation for Medical Research of the University of California and printed in this issue (page 39).

The editor some weeks ago suggested to one of the city councilmen of Los Angeles that Director Meyer be written to, with a request for suggestions. The article above referred to and a copy of a letter which is printed in the correspondence column of this issue, are the responses of Doctor Meyer thereto.

Rabies is one of the diseases which, fortunately for the human race, is only rarely encountered nowadays, but it is a disease which, like smallpox, will be encountered when sane protective measures are not observed. It seemed desirable, therefore, that a statement by someone who has had past experience in the handling of rabies situations, as Doctor Meyer has had in South Africa, should be made, for such a statement could be of considerable value to both the medical profession and the lay public of California. That is why the subject is commented upon in this column.

COMMENT ON THIS AND THAT

On Some Recent Statements Regarding Deaths During Childbirth.—In the *San Francisco Chronicle* of May 7, 1931, was a front-page article with double-column heading, "Mrs. Hoover Scores Deaths in Maternity." The above caption was evidently based on the fact that Mrs. Hoover was among those present at a New York City meeting held in connection with Mother's Day, and which was attended by some four hundred women.

The lay woman president of the Maternity Health Association, which organization sponsored the meeting, "declared that at least 10,000 of the 16,000 who died yearly could be saved through proper care." These figures referred to the deaths of women during childbirth. It would be interesting to know the background and authority for the above figures, which were broadcasted in an Associated Press dispatch.

Equally interesting was the concluding statement which stated: "Dr. Philip Van Ingen, secretary of the American Child Health Association, said that often physicians themselves were not educated properly for obstetrical work and that European midwives, supervised by the government, often have lower mortality rates than American doctors."

Perhaps this Doctor Van Ingen will explain whether he was talking of nonsectarian or cultist physicians, or both; also, what changes he would inaugurate in the obstetric courses of the Class A medical schools of America; and in making his comparisons with some of the European nations with geographical domains much smaller than many of our states of the United States of America, will also explain whether or not he thinks his analogy to such paternalistic European governments to our own independent American commonwealths is a fair one.

It is such an easy matter to make striking speeches about the prevention of diseases and of deaths, but such a very difficult task to actually

prevent disease and death. Especially so, if the morbidity and mortality diseases are associated with social as well as physical community ills. One is sometimes tempted to think that some of the executive secretaries of certain well-meaning lay organizations spend more time in thinking up startling slogans for use at meetings and conventions than they do in unostentatious and laborious effort to bring better procedures and methods into play. Such exploitations must probably be accepted, however, as an expression of the propaganda spirit which has been so rampant during the last few years of super-economic prosperity. With the harsher times of today and the deflation of economic values may come perhaps a partial deflation also of some of the propaganda and word phrasing above quoted. If so, a good purpose may be served, and the world may yet see itself move forward in its civilization with as much and as steady progress as when under the influence of convention, radio, or press propaganda.

* * *

The Los Angeles County General Hospital Hearing.—At the time the copy for the July CALIFORNIA AND WESTERN MEDICINE is going forward to the printer the Los Angeles County General Hospital hearing, to which reference has been made in this column in the last two issues of this journal, has finally come, if not to an end, then at least to a pause. The story of the situation at the time of this writing is summarized in the following excerpt, taken from the Los Angeles *Evening Herald* of June 18, 1931:

"With the hearing of the charges of incompetence against Dr. Neal N. Wood, as superintendent of the General Hospital, ended, the board of supervisors today had the case under advisement. Their decision as to the retention or dismissal of Doctor Wood will be announced later.

"Closing arguments by counsel were heard yesterday. Supervisor Frank L. Shaw, who had preferred the charges against Doctor Wood, moved that he be dismissed, but the supervisors voted this motion down. They then took the matter under advisement and voted to adjourn.

"None of the board indicated when the decision would be reached."

If a decision is reached by the board of supervisors before the forms for the July CALIFORNIA AND WESTERN MEDICINE are closed, a notation will be made of the outcome.

In the meantime it may be in order to state that it is the editor's opinion that if the board of supervisors of Los Angeles County discharges Superintendent Wood at this time, when the massive sixteen-million-dollar acute unit is still in course of erection, that the said board, through such action, will probably put the taxpayers of Los Angeles County to an untold loss in money, running into some hundreds of thousands of dollars. For at this time, outside of the architects who only plan professional facilities as directed, Doctor Wood is practically the only man who knows not only the intimate details of the plans of construction, but what is equally important, the object and purposes of many of the arrangements. What Doctor Wood knows on this subject is

knowledge acquired during many hours of study of plans during the last several years. No one other medical man has that knowledge, nor can any one other medical or lay man acquire that knowledge without money loss to the county of Los Angeles.

In making this statement the editor holds no brief for Doctor Wood on the matter of the new acute unit, as witness the comments in this column in former issues of CALIFORNIA AND WESTERN MEDICINE (February 1930, page 117; and March 1930, page 193).

Nevertheless, to dispense with Doctor Wood's services at this time cannot result in anything else than a great money loss to the taxpayers of Los Angeles County.

* * *

Doctor Rooney's Historical Sketch of the California Medical Association—Every County Society Should Have a Committee on History.—How many of the readers of CALIFORNIA AND WESTERN MEDICINE perused the item in last month's June "Twenty-Five Years Ago" column, which was excerpted from the California Medical Association presidential address of Dr. Robert R. Rooney? The quotation dealt largely with a brief outline of the early history of the California Medical Association, but gave expression at the same time to such depth of loyalty that it is good for those who are in active work some twenty-five years later to appreciate that our medical forbears in California sensed their organization obligations as keenly as do we of this later day and were quite as alert in solving the problems of their time as are we in our own period.

Doctor Rooney, who lives up in the Sacramento region, in the old town of Auburn, graduated from McGill as a member of the class of 1870. He had the honor to serve two years as president of the Medical Society of the State of California (the former name of the California Medical Association) because the great earthquake of 1906, which took place while the thirty-sixth state medical association session was being held, brought the convention proceedings to a sudden stop. Doctor Rooney is the oldest of the living ex-presidents of the California Medical Association, although Dr. W. LeMoyne Wills, Pennsylvania 1882, of San Marino, Pasadena, is the senior living ex-president, he having been the head of the California Medical Association some ten years earlier, in 1896.

Doctor Rooney's historical references may also serve as a reminder to all county medical societies which have not yet done so, to appoint their committees on history for their respective societies. The report of the California Medical Association Committee on History was printed in the June 1931 CALIFORNIA AND WESTERN MEDICINE, page 444, and a list of local committees on history was there given. If your county society has no such committee, drop a line to your president and ask him to appoint the same and to forward the names to the central office of the California Medical Association at San Francisco. A

history of the California Medical Association and of its component county societies cannot be compiled until such time as the component county societies show interest and intent to coöperate in the work. If your county society is not represented in the list as printed on page 445 of the June issue, you can render a service by calling the attention of your president thereto. These coming summer vacation months would be a convenient time in which old books and records could be gone over by such committees and the groundwork of their compilations laid out.

* * *

A Component County Society of the California Medical Association Makes a Contract With the Boulder Dam-Metropolitan Water District of Southern California.—The *Bulletin* of the Los Angeles County Medical Association of June 18, 1931, prints some very interesting information concerning an arrangement made between that county society and the Metropolitan Water District of Southern California. Under the said arrangement, the Metropolitan Water District will collect from every employee a stated sum per month to create a fund through which such employee will receive medical and hospital care for sickness or accidents not covered by the Industrial Accident Acts. Each employee would have the privilege of choosing any member of the Los Angeles County Medical Association to give such professional care. A fee table was compiled and the district will pay the expenses incurred. Members of the California Medical Association who are interested in this new departure will find an outline of it in the Medical Economics column of the Miscellany department of this issue (page 66).

It is hoped that this attempt to maintain the important element of individualization in medical practice will be successful. The experiment will be watched with much interest. The details of the plan are worthy of special consideration by all county society committees on medical economics.

* * *

Certified Milk and Its Proposed Pasteurization.—Back in Newark, New Jersey, in the year 1888, Dr. Henry L. Coit advocated the production of cleaner and better milk, and as a means to the attainment of that end conceived the plan of having county medical societies appoint milk commissions which would supervise the production of the highest possible grade of clean pure milk. He coined the phrase "certified milk," copyrighting it, and permitting its use only by authorized county medical society milk commissions.

The editor was a member and secretary of the original Milk Commission of the Los Angeles County Medical Association, which came into existence a quarter of a century ago, the commission still having its original chairman, Dr. F. C. E. Mattison, and its original secretary. The modern dairy, with its up-to-date equipment, presents a quite different set-up from the dairy of twenty-five years ago. Much of the credit of the

better and cleaner milk which is produced today is the result of the work of the early certified milk commissions of the United States which acted as pace-makers for federal, state, county, and city health officials, who also took up the work of better milk production.

More recently the vogue for pasteurization (a method not so long ago looked at somewhat askance) has again come into favor. Some of the more enthusiastic proponents of pasteurization even insist that certified milk should be pasteurized. In a letter sent out by John S. Ellsworth of Simsbury, Connecticut, who is the owner of the Holly Farm and Certified Dairy of that place, this hue and cry for universal pasteurization is commented upon. One paragraph from his letter would seem to be worthy of thought by all who have a special interest in the production of pure milk. It reads as follows:

"It is my own personal opinion that certified milk stands as the last barrier against overzealous but ill-advised officials whose growing tendency is to shout for pasteurization as though it were magic cure-all for every evil, whereas we know too well that it still remains a problem. If the barrier is weakened, in my judgment, certified milk will cease to be; but of far more reaching consequence will be the results to the nation, both economically and on the score of health. What we need is more clean milk and less of the other kind—not vice versa.

"I have no desire to block well-matured conviction, but it seems to me that at this moment we are far removed from either the necessity or justification for a step which is likely to be irrevocable."

Here in California the certified milk commissions in both the north and south have given serious consideration to the agitation above referred to. It may be said that they are still in favor of a certified milk that is raw and clean.

* * *

The California Legal Profession at Last Adopts a High School Standard of Preliminary Education.—More than twenty years ago practically all nonsectarian medical schools of the United States were working under a preliminary education requirement of minimum education, demanding a four-year high school course or its equivalent. As a matter of fact, even at that day many medical schools demanded even more preliminary education than a four-year high school course.

Today most of the Class A medical schools demand a four-year high school course plus two or three years of liberal arts work of collegiate standard.

It seems strange that the legal profession should have been so tardy in raising the educational standards of its disciples. However, better late than never. We believe that with such higher standards of legal education, many of our judges in the future will be more apt to interpret our state medical practice acts in favor of proper educational standards and of protection of the public health. It has been a strange experience in the past that, both in the legislatures and from the bench, our medical practice acts in America have had much to fear from the legal profession.

The Los Angeles *Express* of June 16, 1931, printed an editorial entitled "Education of Lawyers." In view of the facts above mentioned, it seems worthy of a place of record. Quotation follows:

"Persons admitted to the practice of law in California hereafter must come with at least a high school education or its equivalent. Governor Rolph just has signed and made law of a bill passed by the legislature demanding such educational qualification of future lawyers.

"Strangers in California likely will marvel at the moderation of the new requirement. They don't know our lawyers. They are accustomed to literal application of the term 'learned counsel,' and find it hard to comprehend the existence of a state bar and judiciary composed even in part of men whose background of educational accomplishment falls short of the meager high school curriculum.

"Yet the small gain made by this measure was accomplished only after a struggle. The bill had been prepared by a committee of the self-governing state bar, and was supported at Sacramento by educators as well as a large body of the legal profession. But there was opposition. Legislators felt 'rights' were being infringed, and that possibly some budding Abraham Lincoln would be deprived of his chance to rise out of poverty and illiteracy to eminence at the bar and political greatness. These were not farmer members, but lawyers, who talked that way.

"In face of such opposition, the bill was passed, and has been signed and made law. It is a step toward a literate bar and judiciary in this state."

Now arises the question: How long will it be before the legal profession of California, through its state bar, will demand a definite amount of preliminary education of collegiate standard, as do the medical schools. For surely in law, as in medicine, both being of the learned professions, an adequate and broad preliminary education would work to the elevation of the highest and best standards.

Central Office Section.—An excellent opportunity was offered the Department of Professional and Vocational Standards to extend its educational work to the people of California through the medium of the State Fair, from August 30 to September 7. Availing itself of this opportunity, the Department, through the coöperation of the members of the various units, presented interesting and instructive exhibits covering the activities of nine of the boards and sections.

For the first time the general public was brought into direct contact with and given first hand knowledge of the new Contractors' License Law and the equally new Civil Engineers' Registration Law. The scope of the laws, the manner in which they are administered and the benefits they afford to the citizens of California were explained to thousands of visitors to the Fair and the exhibits of construction work in both the civil engineers' and the contractors' displays attracted considerable interest.

Other boards who participated in the Department's exhibit, and whose displays attracted throngs of visitors, were the Board of Medical Examiners, Board of Dental Examiners, Board of Optometry, Board of Embalmers and Funeral Directors, Board of Barber Examiners, Board of Cosmetology, Board of Architects, North, and Board of Architects, South.

What the protective laws under which each of these boards operates have accomplished in the way of driving irresponsible and dishonest men and women out of the professions and vocations in California was graphically demonstrated in the various exhibits. It is felt that the results have been extremely gratifying and the efforts expended have proven well worth while.—*Report to Governor's Council, California State Department of Professional and Vocational Standards.*

What Has Caused the Medical Crisis for the White Collar Man?—It is variously attributed to the rise of specialism, the development of new and more expensive methods of diagnosis and treatment and the diminished purchasing power of the dollar. Apparently the cost of modern medical service constitutes the only financial difficulty which requires to be remedied for the great middle class. If there are other economic injustices visited upon them this does not appear in public discussion. They are accustomed to the finer things of life and their appreciation; they apparently can get them to a satisfactory degree; they are expected by their employers and the world at large to live and dress in a genteel manner. They appear able to do this and to be satisfied with their lot until illness appears in the family. Does it not appear strange that the great injustice comes from the hands of a profession, whose rewards have always been measured by the economic condition of the client? Is it not more logical to conclude that in the change of the economic tide the budgetary balance of this whole group of society has been permitted to become too unstable, that there is too little provision for the exigencies of illness, as well as the means for avoiding them which have to be taken into account by all, even by the physician himself?

Perhaps my views in this matter are narrow and colored by my associations. I can only say that I have endeavored to prevent them from becoming so. But certain things seem very clear to me and to the point of being self-evident.

1. Illness and injury are inevitable occurrences in the lives of all human beings in the present state of civilization and industrial organization.

2. Once they have arisen, in those otherwise economically independent, they call for individual attention and the preservation of the right to choose by whom and how this shall be rendered.

3. The cost of medical service under such circumstances should be considered a normal expense for the individual to be foreseen and provided against according to the scale of his living in all of its other implications.

4. There is no economic reason why society should provide this for the individual who is otherwise self-sustaining, in a manner different from that in which his other necessities are provided for.

5. The acknowledgement that such special provision must be made for him is an acknowledgement that his wage fails to sustain him. The remedy should lie, therefore, in the elevation of his earning power and in teaching him how to use it; not in the gift to him of service taken, even in part, from another social group.

6. Provision against such contingencies as we have in mind should constitute a part of his regular budget. It should not require to be balanced by the intervention of the state.

7. It should be possible for the individual to be insured against the expense of illness, in himself or his family; but only in the same way that it is possible for him now to insure against the burning of his house and its contents. This does not mean "health insurance" as it is commonly understood. This usually implies that medical service is furnished him by contract at a low cost. When one's house is destroyed by fire, no one is called upon to replace it at reduced cost. On the contrary, the money is furnished by means of which it may be rebuilt at the prevailing rate for such commodities as may be required. I am no actuary, but I am convinced that insurance against illness could be furnished on the same principle. As a matter of fact, insurance against accident is provided in this manner, at the present time.

8. It is necessary to study not only the cost of medical care for the middle class of our country but rather the general economic situation of this whole class of society.—Albert H. Freiberg, M. D., *Ohio State Medical Journal*, November 1929.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Proctology.—While hemorrhoids have been treated for more than forty years by sub-mucous injections of sclerosing fluids, other important lesions at or near the anal canal are successfully treated by a similar method. This applies to pruritus ani and anal fissure.

If there is a constitutional or definite local cause of itching it can be discovered and will be suitably dealt with. The so-called idiopathic cases lead to great distress, and the treatment can only be symptomatic. A blocking of the sensory nerve supply by injection will accomplish this. The nerves are the inferior hemorrhoidal and the perineal branch of the fourth sacral, and approach the anus from the posterior and posterolateral aspects. Thus Gabriel,¹ using a solution composed of anesthesin 3 per cent, benzyl alcohol 5 per cent and ether 10 per cent in sterilized oil, injects as much as 10 cubic centimeters through four punctures, 2.5 cubic centimeters being used through each point. The analgesic solution leads to relief within a few hours of injection, and numbness may last some weeks during which secondary changes in the skin may be cared for. He suggests that the anterior area be similarly dealt with, the right anterior and the left anterior quadrants each at a week apart. We have ourselves confirmed the beneficial results of this method, using, however, only one puncture in front or behind the anal canal and about two centimeters from the ano-cutaneous margin. This having been touched with tincture of iodine, a 50-millimeter needle is inserted once only and injections made by altering the position of the point of the needle. The solution must be injected deep enough so that no superficial swelling is noticeable afterward. Yeomans² and Goldbacher³ have described recently similar procedures; the former uses benzocaine in alcohol and the latter, phenol in oil.

An uncomplicated fissure, especially one of recent origin, may be cured also by the injection of the solution of anesthesin. By "uncomplicated" one means particularly that the fissure has no sentinel pile likely to prevent drainage of the infected wound, no marked induration of its base, and no sinus connecting it with the deeper tissue. If a sentinel pile is present it may be snipped away cleanly; other complications need operative measures to secure drainage. Five cubic centimeters of anesthesin solution may be injected directly into the sphincter, a finger being inserted

into the rectum to prevent puncture of the mucous membrane. This secures the relaxation which is necessary to the healing of all fissures, whatever means are employed. The injection may be made from behind, using the same site as in injecting for pruritus. The needle is inserted into the external sphincter muscle laterally and behind in a fan-shaped manner. Two or three injections may be necessary, but the first will relieve pain and spasm remarkably. It is wise to stimulate the raw area by pure ichthyol, phenol, or silver nitrate.
M. S. WOOLF, San Francisco.

Healing of Operative Wounds in Syphilitic Patients.—An idea has long been prevalent that operative wounds in syphilitic patients were very apt to show delayed or faulty healing. Considerable statistical evidence has accumulated during recent years which would seem to prove that such a belief is, in general, incorrect. In a very interesting article, Scheffey¹ has studied wound healing in ninety-two syphilitic patients upon whom major gynecologic operations had been performed. As a control series he studied ninety-two patients with negative Wassermann reactions. Surprisingly little difference was noted in the postoperative course or in the wound-healing rate of the two groups.

When all types of wounds were considered the syphilitic patient's wounds healed as rapidly as did those of the normal controls. The average number of postoperative hospital days showed practically no difference in the two groups. This fact also suggested that convalescence was not prolonged by syphilitic infection as manifested by a positive Wassermann reaction. The study revealed that the amount of treatment which had been given to the treated syphilitic patients prior to operation did not materially hasten wound healing in comparison with the untreated group of syphilitics or with the normal controls. The mortality of the two groups was practically the same.

Scheffey favored routine Wassermann reactions on all gynecologic cases and the consideration of the therapeutic problem of each positive case prior to operation rather than indiscriminate routine preoperative specific therapy on all Wassermann positive cases. He believed that "the coöperation of the syphilologist is desirable, helpful, and advisable."

In discussing this paper, Stokes pointed out that the real problem was that of avoiding the incision of an undiagnosed gumma. For although

¹ Gabriel, W. B.: *The Treatment of Pruritus Ani and Anal Fissure*, B. M. J. (Aug. 30), 1930.

² Yeomans, C. D.: *Proctology*, D. Appleton and Co., 1929.

³ Goldbacher, L.: *Hemorrhoids, the Injection, Treatment and Pruritus Ani*, F. A. Davis, Co., 1930.

¹ Scheffey, Lewis C.: *The Role of the Positive Wassermann Reaction Gynecologic Surgery*, J. A. M. A., 96:261, No. 4 (Jan. 24), 1931.

an apparently normal operative wound in a syphilitic patient heals readily, the converse is true when a gumma is incised. Incision causes a gumma to spread rapidly, to "cartwheel" out into the surrounding tissue. Stokes favored a single preoperative arsphenamin injection for the protection of the operative surgeon, but warned that before this is given, one should know that the patient is reasonably young and intact and free from cardiovascular and neural involvement. Otherwise a dangerous Herxheimer reaction might occur.

H. J. TEMPLETON, Oakland.

Recovery Oxidation in Muscle.*—We are now in position to discuss perhaps the most important of the respiratory mechanisms of the cell. Under the names of myohematin and histohematin MacMunn,^{8,9} in 1886, described a respiratory pigment showing characteristic absorption bands in the spectroscopy. This pigment occurred in the muscles and other tissues of almost all kinds of animals. Hoppe-Seyler, however, considered the pigment merely a mixture of derivatives of ordinary hemoglobin, and as Keilin puts it, "Malgré les arguments de MacMunn; l'autorité de Hoppe-Seyler a prévalu, et l'existence de ce pigment est rapidement tombée dans l'oubli."¹⁰

Keilin showed that this pigment does in fact exist, and that it has an importance which MacMunn did not suspect. It occurs in practically all animal cells, and since it is not a simple hematin, Keilin¹⁰ suggested the name "cytochrome" (cell pigment) instead of myohematin. In general the concentration of cytochrome is greater in the more active tissues. Keilin showed by spectroscopic analysis that cytochrome consists of three components, "a," "b," and "c." These substances readily undergo reversible oxidation and reduction without being destroyed.^{11,12}

In living cells cytochrome "a," "b" and "c" are readily reduced by hydrogen of the substrate activated by the several dehydrogenases, while the reduced cytochrome is readily oxidized by oxygen in the presence of the enzyme indophenol oxidase (so-called because besides oxidizing cytochrome it will give the indophenol reaction with "Nadi" reagent). Thus "cytochrome acts as a carrier between two kinds of respiratory enzymes of the cell"; dehydrogenases and oxidases. This constitutes a catalytic five compound system, composed of substrate, dehydrogenase, cytochrome, oxidase and oxygen. Here as in all other biological oxidations, the first step in the oxidation is dehydrogenation.

Cytochrome "a" and "c" are only active in catalytic five compound systems, but cytochrome

"b" can serve as part of the catalytic four compound system: substrate, dehydrogenase, cytochrome "b," oxygen. Since cyanides do not interfere with the oxidation of cytochrome "b," it is inferred that this substance can transfer hydrogen directly to molecular oxygen, without the aid of oxidase.

For many years Warburg has emphasized the importance of an iron-containing pigment, the "respiratory ferment," in cellular respiration. This material could be inactivated by cyanides, hydrogen sulphide, carbon monoxide and by heating, and Warburg considered respiration to consist essentially of an activation of oxygen by this ferment. However, the recent studies of Keilin,¹¹ afford much evidence that the "respiratory ferment" is identical with indophenol oxidase, so that we may write the catalytic five compound system mentioned above as: substrate, dehydrogenase, cytochrome, "respiratory ferment," oxygen. Thus it is as an agent in a dehydrogenation that Warburg's "respiratory ferment" is important in biological oxidation, a conception which introduces unity in the various theories of biological oxidation.

Strong evidence in favor of this view is afforded by the fact that methylene blue can replace oxidase plus oxygen.⁹

While the cytochrome system is perhaps the most important of the hydrogen transporters in the animal cell, it is by no means the only one. The sulphhydryl compounds (*e. g.*, glutathione, cystine, cysteine) are important in this connection, and Knoop¹³ has recently suggested that a similar rôle may be played by a number of reversible oxidation-reduction systems known to be present, such as the oxy and ketonic acids and the ketonic and amino acids.

The opinion was held until recently that the respiration of animal tissues is almost completely inhibited by cyanides. This view was based on a small number of experiments involving a few types of tissues, and the recent work of Dixon and Elliott¹⁴ has shown that in general it is not true. In a series of studies on many tissues from a wide variety of forms these investigators showed that in some cases the maximum inhibition of respiration effected by cyanide is only 40 per cent, while in others (*e. g.*, yeast) there may be up to 90 per cent inhibition. An average of about 60 per cent was noted.

Some examples are interesting. In rabbit muscle M KCN caused a 74 per cent inhibition, in rat M/30 muscle 63 per cent. The writer observed an 83 per cent inhibition in the case of a frog sartorius.

It is clear that cyanide stable respiratory systems are important in the animal economy. In many cases xanthine oxidase may be the chief factor in such respiration, but where there is no

* Part I of this contribution to this column was printed in the June, 1931, number of California and Western Medicine (page 424).

⁶ Thundberg, T. Quart. Rev. Biol. v, 318, 1930.

⁸ MacMunn, C. A. Phil. Trans. Roy. Soc., clxxvii, 267, 1886.

⁹ MacMunn, C. A. J. of Physiol., viii, 57, 1887.

¹⁰ Keilin, D. Reunion Plénière, Société de Biologie, 1927.

¹¹ Keilin, D. Proc. Roy. Soc., B. civ, 206, 1929.

¹² Keilin, D. Proc. Roy. Soc., B, civ, 418, 1930.

¹³ Knoop, F. Science, lxxi, 23, 1930.

¹⁴ Dixon, M., and Elliott, K. A. C. Biochem. J., xxiii, 812, 1929.

xanthine oxidase; as in skeletal muscle¹⁵ (p. 366), this moiety of the oxygen consumption must be ascribed to systems other than it, but like it, capable of transferring hydrogen directly to molecular oxygen without intervention by an oxidase. Known examples include the catalytic four compound system substrate, dehydrogenase, cytochrome "b," oxygen; and the catalytic three compound system involving tyramine, tyramine oxidase and oxygen.¹⁶ No doubt there are others.

Several investigators have recently pointed out some interesting consequences of modern views on biological oxidation.^{6, 17} The oxygen consumed in respiration serves as final hydrogen acceptor in the several dehydrogenation systems, and is thus entirely used in the formation of water. The oxygen contained in the expired carbon dioxide of catabolism is derived from oxygen already present in the several fuel molecules, and from water added to the fuel molecule where double bonds are the consequence of dehydrogenation. After such addition there may be further dehydrogenation followed by splitting off of CO₂.

The events occurring in recovery oxidation in muscle may be briefly outlined in terms of the picture we have drawn. Some substance or substances produced in the active phase of muscular contraction evoke recovery. The dehydrogenation mechanisms of the cell will oxidize any substance of suitable redox potential (Clark) and molecular configuration,¹⁸ and accordingly the chain of reactions responsible for dehydrogenation will be evoked on the appearance of such a body. Recovery oxidation is thus a consequence of the production of proper substrate during contraction. That neither nervous nor hormonal factors are essential is indicated by the fact that recovery oxidation occurs in the excised skeletal muscle preparation.

It should be noted that energy for anabolism (the restorative reactions of recovery) is obtained from further catabolism. According to Hill and Meyerhof, some 20 per cent of the lactic acid formed in contraction is oxidized to carbon dioxide and water, yielding energy which is responsible both for the recovery heat production and for the resynthesis of lactic acid to glycogen. Conant and Tongberg¹⁹ have recently suggested a probable chemical path for this resynthesis.

In conclusion we note that the views of Wieland and of Warburg have been integrated, largely by the work of the Cambridge School, into a picture which is not the original view of either, and which is notably different from the conventional picture of a decade or so ago. One may comment on this situation by quoting from the "Première Mémoire sur la Respiration des Animaux" of Lavoisier. . . . "These modifications of earlier

views cost nothing to those who search for the truth for its own worth, and without any other ambition than to find it. Moreover, we do not believe, far as we are from the elimination of uncertainty, that [our] theory of respiration will leave nothing to be desired."²⁰

JOHN FIELD, 2ND., Stanford University.

²⁰ Oeuvres de Lavoisier. Tome II, 688, 1789.

Vaccination.—As the time approaches for the consideration of desirable public health legislation, the question of the wisdom of presenting bills to improve the vaccination law will come up for decision.

The arguments founded on existing conditions are growing stronger because the United States Public Health Service has stated that during ten months of the current year about 40,700 cases of smallpox have been reported in this country, whereas during the corresponding period of last year about 28,000 cases were recorded. Even the larger figures probably do not make the situation sufficiently impressive because it is well known that all cases are not reported.

The United States and British India report a larger incidence of smallpox than any other country. Records show that since 1925 there has been a gradually increasing number of cases, the figures for 1926 being 33,732, those for 1927 show an increase of 3760; 1928 had 39,396; and 1929 had 42,282 cases. The cases to be reported in the remainder of 1930, according to precedent, will probably make the total exceed the figures for 1929. The rates of incidence in smallpox show that the 1926 figures are .288 per 1000 of the population and the 1929 figures are .348.

Even available statistics may be very misleading, for in the districts from which reports are not made regularly, or in some cases not made at all, are the districts where smallpox is most prevalent.

It is in these sections where the greatest carelessness with respect to prevention prevails. It may be that there are twice as many cases of the disease as are reported. It is not improbable that taking into account the average life expectancy, it might be that one person in twenty-five is likely to have an attack of smallpox during his lifetime.

Although the mortality from smallpox is less than one per cent at the present time, history has shown that different epidemics have varying mortality rates and the development or importation of some virulent strain might bring about a mortality of 30 per cent.

Our protection consists in vaccination, and the records show that at continental and insular stations and at foreign ports there were 203,388 persons vaccinated last year. This large group acts as a protective barrier against the disease, and added to this are the persons vaccinated because of belief in the efficacy of the procedure and those who are vaccinated under state laws.

The protective power of vaccination is diminished in proportion to the number of unvaccinated people in a community. In Massachusetts there are two weak places in the chain: first, in the number of pupils in private schools where vaccination is not required, and second, among the cases certified by physicians as unsuitable for vaccination.

The greatest advance would follow vaccination of all infants, and revaccination at regular intervals thereafter.—*New England Journal of Medicine*, December 4, 1930.

Freud Wins Goethe Prize.—Professor Sigmund Freud, world-famous psychiatrist and scientist, was made the recipient of the Goethe prize, the greatest scientific and literary distinction in Germany. The prize was given to Doctor Freud at ceremonies in Frankfurt at the end of August.—*The Journal of Nervous and Mental Disease*, September 1930.

¹⁵ Dixon, M. Biol. Rev., iv, 352, 1929.

¹⁶ Hare, M. L. C. Biochem. J., xxii, 968, 1928.

¹⁷ Martin and Weymouth. Elements of Physiology, p. 48, 1928.

¹⁸ Fromageot. Comp. Rend., clxxxii, 1240, 1926.

¹⁹ Conant and Tongberg. J. Biol. Chem., lxxxviii, 701, 1930.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

JUNIUS B. HARRIS.....President
JOSEPH M. KING.....President-Elect
EMMA W. POPE.....Secretary

OFFICIAL NOTICE

Fall Meeting of the Council.—The next meeting of the Council of the California Medical Association will be held at the Hotel Huntington, Pasadena, on September 26, 1931.

COUNCIL MINUTES*

Adjourned Meeting of the Council of the California Medical Association (Two Hundredth Meeting—Part I)

Approved at the Two Hundred and Second Meeting of the Council of the California Medical Association, May 23, 1931

Held in Room 126 of the Fairmont Hotel, San Francisco, Tuesday, April 28, 1931, at 2 p. m.

Present.—Doctors Kinney, Harris, Pallette, Hamlin, Arnold, Duffield, DeLappe, Peers, Phillips, Rogers, Hunter, Cushman, Kiger, Catton, Kelly, Ewer, Kress, Pope, and General Counsel Peart.

Absent.—Doctors Moseley and Coffey.

1. Call to Order.—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. Adjournment.—On motion duly made, seconded and carried, the meeting adjourned to meet at 2 p. m. Wednesday.

OLIVER D. HAMLIN, *Chairman.*
EMMA W. POPE, *Secretary.*

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Minutes of the Two Hundredth Meeting of the Council of the California Medical Association

(Adjourned Meeting—Part II)

Approved at the Two Hundred and Second Meeting of the Council of the California Medical Association, May 23, 1931

Held in Room 126 of the Fairmont Hotel, San Francisco, Wednesday, April 29, 1931, at 2 p. m.

Present.—Doctors Kinney, Harris, Pallette, Hamlin, Arnold, Duffield, DeLappe, Phillips, Rogers, Hunter, Cushman, Kiger, Catton, Kelly, Ewer, Kress, Pope, and General Counsel Peart.

Absent.—Doctors Moseley, Coffey, and Peers.

1. Roll Call.—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. Medical Service.—Dr. Daniel Crosby of Oakland reported on the personnel and activities of the Co-operative Medical Service, Incorporated, a new health organization of San Francisco.

Doctor Crosby then outlined the plan of insurance hospital service of the Baylor University of Texas. It was the sense of the Council that the correspondence

on the insurance hospital plan outlined by Doctor Crosby be obtained for the Association files.

3. Extension Service.—Dr. Langley Porter, dean of the University of California, outlined the plan of the University for carrying on postgraduate instruction, consultation service, and education of the public through county medical societies. Doctor Porter stated that the University desired to work in coöperation with the Association.

Action by the Council.—On motion of Duffield, seconded by Kiger, the following resolution was adopted:

Resolved, That the Committee on Extension Lectures be instructed to coöperate with Doctor Porter and proceed with the carrying out of the plan outlined as soon as possible.

Doctor Porter suggested that the service be definitely brought to the attention of the county societies.

Action by the Council.—On motion of Kress, duly seconded and carried, the following resolution was adopted:

Whereas, The Medical School of the University of California has worked out a plan for postgraduate medical work and courses which would be carried on in coöperation with component county societies, and which plan commends itself to the Council of the California Medical Association for its excellent features; now, therefore, be it

Resolved, By the Council that it endorse the plan and request the fullest coöperation of the State Association officers and of the officers and members of the component county medical societies of the California Medical Association.

4. Public Health Exhibit.—Dr. Fred B. Clarke, chairman of the Committee on Public Health and Instruction, outlined the plan for a public health exhibit as included in the report of the committee published in the *Pre-Convention Bulletin*. Doctor Clarke stated that he felt it would be necessary to have some one individual handle the exhibit, collect information therefor and arrange for speakers and the proper presentation of the exhibit at the various fairs.

Action by the Council.—On motion of Duffield, seconded by Arnold, the following resolution was adopted:

Resolved, That it be the sense of this Council that the Committee on Public Health and Instruction, together with the Committee on Extension Lectures, proceed with the preparation of a program for such exhibit as indicated by Doctor Clarke and, further, that the Council authorize payment of the railroad fare of members of such committees for such conference as is necessary to formulate the plan.

5. Clinical and Research Prize Contest.—Dr. George Dock, chairman of the Committee on Clinical and Research Prizes, submitted the following report:

"The Committee on Prize Essays recommends that the Clinical Prize be awarded to the author who signs himself 'Ambrose Paré,' for the paper on 'The Effects of Incidental Head Surgery in the Course of Pulmonary Tuberculosis.'

"The Committee recommends that the Research Prize be awarded to the author who signs himself 'René Théophile,' for the paper entitled 'Meningeal Allergy in Tuberculosis.'

"The paper on 'The Narrow Bispinous Diameter' by Baudelocque receives honorable mention.

"The usual rules shall apply to the publication of prize essays."

The secretary stated that the paper by "Ambrose Paré" was written by Eleanor Seymour, Olive View;

* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

* For other minutes of the Council, of meetings held during the sixtieth annual session at San Francisco, April 27-30, 1931, see June 1931 California and Western Medicine, page 451.

the paper by "René Théophile" by Eugene Ziskind and Esther Somerfeld, Los Angeles; and the paper by "Baudelocque" by Samuel Hanson, Stockton.

It was felt that the editors should stress this contest during the year in the JOURNAL.

Discussion was then had of the rules governing the contest, and on motion of Catton, duly seconded, the following resolution was adopted:

Resolved, That the Executive Committee have called to its attention for study and report back to the Council the rules regarding the matter of identity of authors of papers submitted on section programs and for the prize award and that it consider whether or not a certain number of papers be submitted before a prize award is made in the contest.

6. **Birth Control.**—Publication of details of this item will be made in due time.

7. **Annual Meeting.**—Discussion was had of the place of the next annual meeting. Invitations to hold the meeting at the Huntington Hotel, Pasadena, and the Ambassador Hotel, Los Angeles, were presented.

After discussion on motion duly made and seconded, the following resolution was adopted:

Resolved, That it be left to the decision of the House of Delegates as to whether the meeting be held at the Huntington or the Ambassador hotels.

8. **Legislation.**—Discussion was had of the advisability of having Doctor Harris present a short talk on legislation before the House of Delegates. It was the sense of the Council that Doctor Harris should speak before the House while the Reference Committee was acting on new resolutions if the House authorized the change in the order of business.

Discussion was had of certain correspondence presented by Doctor Hunter, and the desirability of raising the standards of certain medical offices throughout the state.

Action by the Council.—On motion of Kelly, seconded by Catton, the following resolution was adopted:

Resolved, That the Committee on Medical Education and Hospitals be instructed to work up a set of standards which should govern the California Medical Association for positions in the medical institutions in the State of California to the end that this matter may be made public so that the attitude of the Association may be known and that the Council after adopting this group of standards can then proceed to put them into effect.

Doctor Hunter asked that the secretary be instructed to reply to Mr. Murphy. No objection.

9. **Minutes of the Council.**—Minutes of the 199th meeting of the Council were read.

The item covering disposition of letter from the Los Angeles County Medical Association regarding the Medical Health Service of Los Angeles was called to the attention of the Council.

Action by the Council.—On motion of Pallette, seconded by Cushman, the following resolution was adopted:

Resolved, That the correspondence from the Los Angeles County Medical Association regarding the Medical Health Service be reconsidered.

Action by the Council.—After discussion, on motion of Pallette, seconded by Kinney, it was

Resolved, That the matter be referred to the general counsel for his opinion and that the secretary of the Association notify the Los Angeles County Medical Association of such action.

Action by the Council.—On motion of Kelly, seconded by Kinney, it was

Resolved, That the minutes of the 199th meeting of the Council be approved.

10. **Adjournment.**—There being no further business to come before the Council, the meeting adjourned to meet at 10 a. m. Thursday in the same place.

OLIVER D. HAMLIN, *Chairman.*
EMMA W. POPE, *Secretary.*

Minutes of the Two Hundred and First Meeting of the Council of the California Medical Association

Approved at the Two Hundred and Second Meeting of the Council of the California Medical Association, May 23, 1931

Held in Room 126, Fairmont Hotel, San Francisco, Thursday, April 30, 1931, at 10 a. m.

Present.—Doctors King, Harris, Pallette, Hamlin, Arnold, Duffield, Ullmann, DeLappe, Phillips, Peers, Schaupp, Rogers, Hunter, Cushman, Kiger, Catton, Kelly, Reinle, Kress, Pope, and General Counsel Peart.

Absent.—None.

1. **Call to Order.**—The meeting was called to order by the vice-chairman, T. Henshaw Kelly.

2. **Reorganization of the Council.**—Doctor Kelly stated that the first order of business would be the election of a chairman for the ensuing year.

3. **Election of Chairman of the Council.**—Oliver D. Hamlin was nominated by William Duffield, seconded by Ruggles Cushman, as chairman of the Council for the ensuing year.

On motion of Peers, seconded by Rogers, the secretary pro tem, Emma W. Pope, was instructed and did cast the ballot of all members of the Council for Dr. Oliver D. Hamlin as chairman of the Council for the ensuing year. Doctor Hamlin then took the chair.

4. **Election of Vice-Chairman.**—T. Henshaw Kelly was nominated by Edward M. Pallette, seconded by William Duffield, as vice-chairman of the Council for the ensuing year.

On motion of Rogers, seconded by DeLappe, the secretary pro tem was instructed and did cast the ballot of all members of the Council for Doctor Kelly, and the chairman announced the election of Doctor Kelly as vice-chairman of the Council for the ensuing year.

5. **Election of Secretary-Treasurer.**—Emma W. Pope was nominated by George G. Hunter, seconded by Robert Peers, as secretary-treasurer of the Association for the ensuing year.

On motion of Duffield, seconded by Pallette, the chairman was instructed and did cast the ballot of all members of the Council for Doctor Pope and announced the election of Emma W. Pope as secretary-treasurer for the ensuing year.

6. **Election of Editor.**—George H. Kress was nominated by Robert A. Peers, seconded by Edward M. Pallette, as editor of the JOURNAL for the ensuing year.

On motion of Duffield, seconded by Kelly, the secretary was instructed and did cast the ballot of all members of the Council for Doctor Kress, and the chairman announced the election of Doctor Kress as editor of the JOURNAL for the ensuing year.

7. **Associate Editor.**—Emma W. Pope was nominated by Henry S. Rogers, seconded by E. M. Pallette, as associate editor of the JOURNAL for the ensuing year.

On motion of Cushman, seconded by Peers, the chair was instructed and did cast the ballot of all members of the Council for Doctor Pope and announced the election of Doctor Pope as associate editor for the ensuing year.

8. **Appointment of General Counsel.**—On motion of Peers, seconded by Pallette, and unanimously carried, the following resolution was adopted:

Resolved, That Hartley F. Peart be appointed General Counsel of the California Medical Association for the ensuing year.

9. **Appointment of Associate General Counsel.**—On motion of Pallette, seconded by Rogers, and unanimously carried, the following resolution was adopted:

Resolved, That Hubert Morrow be appointed associate general counsel for the ensuing year.

10. **Committee on Clinical and Research Prizes.**—The secretary stated that the term of Eugene Kilgore had expired as a member of the Committee on Clinical and Research Prizes.

Action by the Council.—On motion of Rogers, seconded by Pallette, and unanimously carried, the following resolution was adopted:

Resolved, That Eugene Kilgore be reappointed as a member of the Committee on Clinical and Research Prizes for a term of three years.

11. Members of Standing Committees.—The chairman stated that the next order of business would be the appointment of members of standing committees.

Discussion was then had as to the appointment of members of the various committees, whose terms had expired. Attention was called to the Council provision whereby all councilors who were members of standing committees would resign each year so that councilors could serve on committees in which they were particularly interested.

Action by the Council.—On motion of Catton, seconded by Rogers, the following resolution was adopted:

Resolved, That each of the councilors who is serving on a standing committee by virtue of being a councilor has now resigned and it be so written in the minutes.

Separate elections were then held to fill vacancies on all standing committees and the personnel of the various standing committees were announced to be as follows:

STANDING COMMITTEES

Committee on Associated Societies and Technical Groups

R. Manning Clarke, Los Angeles.....	1934
Harold A. Thompson, San Diego.....	1932
William Duffield, Los Angeles.....	1933

Committee on Extension Lectures

Robert T. Legge, Berkeley.....	1934
James F. Churchill, San Diego.....	1932
Robert A. Peers, Colfax.....	1933

Committee on Health and Public Instruction

Langley Porter, San Francisco.....	1934
Fred B. Clarke, Long Beach.....	1932
Henry S. Rogers, Petaluma.....	1933

Committee on Industrial Medicine

Daniel Crosby, Oakland.....	1934
Packard Thurber, Los Angeles.....	1932
Mott H. Arnold, San Diego.....	1933

Committee on Hospitals, Dispensaries, and Clinics

Karl Schaupp, San Francisco.....	1934
John C. Ruddock, Los Angeles.....	1932
Gayle G. Moseley, Redlands.....	1933

Committee on Medical Economics

Lyell C. Kinney, San Diego.....	1934
John H. Graves, San Francisco.....	1932
Ruggles A. Cushman, Santa Ana.....	1933

Committee on Medical Education and Medical Institutions

H. A. L. Ryfkogel, San Francisco.....	1934
George Dock, Pasadena.....	1932
George G. Hunter, Los Angeles.....	1933

Committee on Medical Defense

Henry Snure, Sr., Los Angeles.....	1934
George G. Reinle, Oakland.....	1932
Fred R. DeLappe, Modesto.....	1933

Committee on Membership and Organization

LeRoy Brooks, San Francisco.....	1934
Harlan Shoemaker, Los Angeles.....	1932
Jesse W. Barnes, Stockton.....	1933
The Secretary.....	Ex-officio

Committee on History and Obituaries

George Lyman, San Francisco.....	1934
Charles D. Ball, Santa Ana.....	1932
Emmet Rixford, San Francisco.....	1933
The Secretary.....	Ex-officio
The Editor.....	Ex-officio

Committee on Publications

Percy T. Magan, Los Angeles.....	1934
Morton R. Gibbons, San Francisco.....	1932
Frederick Gundrum, Sacramento.....	1933
The Secretary.....	Ex-officio
The Editor.....	Ex-officio

Committee on Public Policy and Legislation

William Duffield, Los Angeles.....	1934
Junius B. Harris (Chairman), Sacramento.....	1932
Joseph Catton, San Francisco.....	1933
The President.....	Ex-officio
The President-Elect.....	Ex-officio

Committee on Scientific Work

Lemuel P. Adams, Oakland.....	1934
Karl Schaupp, San Francisco.....	1932
F. M. Pottenger, Monrovia.....	1933
Emma W. Pope (Chairman).....	Ex-officio
R. Manning Clarke, ex-officio, as Secretary General Medicine Section, Los Angeles.....	1932
Stanley H. Mentzer, ex-officio, as Secretary General Surgery Section, San Francisco.....	1932

Committee on Clinical and Research Prizes

Eugene S. Kilgore, San Francisco.....	1934
Emmet Rixford, San Francisco.....	1932
George Dock, Pasadena.....	1933

12. Woman's Auxiliary.—Doctor Pallette then introduced Dr. C. R. Howson, president of the Los Angeles County Medical Association, to the Council and stated that the Woman's Auxiliary had requested that two resolutions be introduced at the second meeting of the House of Delegates; but since the house ruled that no new business should be introduced at that meeting, he now wished to have the Council's action on the resolutions.

Action by the Council.—On motion of Catton, seconded by Kelly, the following resolution was adopted:

Resolved, That Doctor Howson be given the privilege of the floor.

Doctor Howson then presented the following resolution:

Whereas, The Committee on the Costs of Medical Care was called into being to study the social and economic problems arising from the increasing costs of illness; and

Whereas, The interest of the public is increasing, due largely to the increasing number of articles in lay periodicals, the tone of most of which is derogatory to the medical profession; and

Whereas, The public is also becoming increasingly interested in the work of the Committee on the Costs of Medical Care, because of the publicity given its studies and reports, which publicity is expected to greatly increase during the balance of the term of the studies; and

Whereas, These studies, which we heartily endorse, are understood to include not only the cost of medical care, but also the cost of dental care, of hospital care, of nursing care, of drugs, and even of burial; and

Whereas, These and other studies have shown that the cost of medical care comprises one-third or less of the actual cost of illness; and

Whereas, Because of the name of this committee there is being fostered in the minds of the public the idea that physicians, either directly or indirectly, are chiefly if not altogether responsible for the high and increasing costs of illness; which idea we believe to be resulting in far-reaching and irreparable damage to the prestige of the medical profession; and

Whereas, The Committee on the Costs of Medical Care was "organized to study the economic aspect of the care and prevention of illness"; now, therefore, be it

Resolved, That the Council of the California Medical Association go on record as being of the opinion that, in justice to the physicians of the nation, the name of this committee should, before issuance of further publications, be changed to eliminate the term "medical care," substituting therefor some such term as "illness," or "the care and prevention of illness," as the committee may see fit; and be it further

Resolved, That we respectfully petition the chairman and members of that committee to take action to this end immediately.

Action by the Council.—On motion of Pallette, seconded by Cushman, the following resolution was adopted:

Resolved, That the resolution as read by Doctor Howson be adopted.

Doctor Howson then read a second resolution. It was felt that the words "consideration and endorsement" should be inserted in the resolution. The resolution then read:

Whereas, This body has gone on record as favoring and urging a change of the name of the Committee on the Costs of Medical Care by elimination of the term "medical care" and the substitution of some such term as "illness" or "the care and prevention of illness"; be it

Resolved, That our delegates are hereby instructed to present this matter to the House of Delegates of the American Medical Association at its annual meeting in Philadelphia this year, to the end that it may receive their consideration and endorsement.

Action by the Council.—On motion of Kelly, seconded by DeLappe, the following resolution was adopted:

Resolved, That the resolution as amended be adopted.

13. Auditing Committee.—In accordance with constitutional provision, the chairman stated that he had appointed as the Auditing Committee for the ensuing year, T. Henshaw Kelly (chairman), Karl Schaupp, and Joseph Catton. Such appointment was approved by the Council.

14. Arrangements Committee.—Discussion was then had of the appointment of members of the Arrangements Committee for the 1932 annual session. It was the sense of the Council that Doctors Palette, Duffield, Kiger, King, and Hunter be constituted a committee with power to act in the appointment of an Arrangements Committee for the next annual session.

15. Councilor Visits.—The question of topics for discussion by councilors during visits to county societies was brought up.

Action by the Council.—On motion duly made and seconded, the following resolution was adopted:

Resolved, That the chairman of the Council appoint a committee of three to formulate a plan of procedure and report to the Council.

16. Council Meeting.—It was pointed out that the annual meeting of the members and directors of The Trustees of the California Medical Association, of which all officers and councilors are members, would be held on May 23, 1931.

Action by the Council.—On motion of DeLappe, seconded by Hunter, the following resolution was adopted:

Resolved, That the next meeting of the Council be held at San Francisco on Saturday, May 23, 1931, immediately after adjournment of the meeting of The Trustees of the California Medical Association.

17. Financial Reports.—Doctor Kelly stated that he had been asked by Doctor Day of Los Angeles to present a resolution regarding financial reports for action by the Council. Doctor Kelly then read the resolution, which was discussed by members.

Action by the Council.—On motion of Hunter, seconded by Ullmann, the following resolution was adopted:

Resolved, That the resolution be adopted with the provision that it be amended by Doctor Kelly and Mr. Peart to include the suggestions of the Council.

It was felt that a written statement should accompany such reports stating that the information was for the confidential use of officers and members of the county societies only.

The resolution as amended read as follows:

Resolved, That upon the written request of the president or the secretary or the Board of Directors or Council (which request shall be evidenced by resolution adopted by majority vote of such Board of Directors or Council) of any component county society of this Association, the secretary-treasurer of this Association shall forward by registered mail or express to the office of such component county society a copy of any monthly financial statement or annual audit of accounts of the Association for the confidential information of the directors or councilors and officers and members of such component society; and be it further

Resolved, That in transmitting such documents upon such request the secretary-treasurer advise the officers of such component county society that said copy be kept at the office of said component county society, and that said documents and the contents thereof are for the confidential use and information of the directors or councilors, officers and members of such component county society, and request that no copies thereof be made and that no publicity be given to any of the contents thereof.

18. Salaries.—Doctor Kelly then stated that a discussion of the salaries authorized in the budget would be had. Doctors Kress, Pope, and Mr. Peart retired.

Discussion was then had of the salaries of the editors. Doctor Kelly stated that he had discussed the work of the editors with Doctor Pope and that she had been agreeable to a reduction in salary as associate editor. Doctor Kelly stated that as associate editor it would be Doctor Pope's duty to do the routine office work connected with the JOURNAL and that Doctor Kress would assume the full responsibility as editor of the official JOURNAL.

Action by the Council.—On motion of Kelly, seconded by Duffield, the following resolution was adopted:

Resolved, That the salary of the editor be fixed at \$5000 for the ensuing year.

Action by the Council.—On motion of Kelly, seconded by Duffield, the following resolution was adopted:

Resolved, That the salary of the associate editor be fixed at \$2400 for the ensuing year.

Action by the Council.—On motion of Kelly, seconded by Cushman, the following resolution was adopted:

Resolved, That the salary of the secretary-treasurer be fixed at \$3600 for the ensuing year.

Action by the Council.—On motion of Kelly, seconded by Peers, it was

Resolved, That the retainer of the general attorney for the California Medical Association be fixed at \$4000 for the ensuing year.

It was pointed out that the retainer of Mr. Peart for Optional Medical Defense would remain as previously set, \$1000; and that of Mr. Morrow as previously set, \$500.

Action by the Council.—On motion of Kelly, seconded by Hunter, the following resolution was adopted:

Resolved, That the retainer of the associate general counsel for the California Medical Association be fixed at \$500 for the ensuing year.

Doctor King called the attention of the Council to the recommendation of the Reference Committee that all papers refused by the JOURNAL should be signed by the Publication Committee.

19. Cancer Commission.—Doctor Harris stated that he had appointed as members of the Cancer Commission authorized by the House of Delegates Charles A. Dukes, chairman; Lyell C. Kinney, vice-chairman; Alson R. Kilgore, secretary; Harold Brunn, William Ophüls, Henry J. Ullmann, Orville Meland, A. Herman Zeiler, and Clarence Toland.

Action by the Council.—On motion of Ullmann, seconded by Palette, it was

Resolved, That the officers and members of the Cancer Commission as submitted by Doctor Harris be approved.

Action by the Council.—On motion of Catton, seconded by Duffield, the following resolution was adopted:

Resolved, That the Cancer Commission on organization be requested to submit to the Executive Committee a statement of its needs in line with the resolution passed by the House of Delegates.*

20. Adjournment.—There being no further business the Council adjourned.

OLIVER D. HAMLIN, *Chairman.*

EMMA W. POPE, *Secretary.*

* Editor's Note.—The House of Delegates resolution was printed on page 432 (XIV, Item b), and the Reference Committee Report thereon was printed in the June 1931 number of California and Western Medicine, as Item IX, b (page 436).

COMPONENT COUNTY SOCIETIES**CONTRA COSTA COUNTY**

The regular meeting of the Contra Costa County Medical Society was held June 9 at Carquinez Hotel, Richmond, with the president, Dr. W. A. Rowell, in the chair.

The minutes of the previous meeting, held in Martinez, were read and approved. A copy of the resolutions passed at that meeting and forwarded to the Board of Supervisors and the County Public Health Association was also read. The application of Dr. J. Roger U. Campbell for admission to membership into the society was unanimously voted. Our delegate to the recent convention of the State Medical Association, Dr. U. S. Abbott, gave a very interesting report of the proceedings of these sessions.

Owing to the inability of the invited speaker, Dr. L. L. Stanley, to be present, two of his associates, Doctors W. P. Goddard and J. O. Hawkins, read the results of Doctor Stanley's investigations. Three papers were presented as follows:

"The Effect of Coffee Drinking on Sleep," read by Doctor Goddard and illustrated by lantern slides.

"The Administration of Testicular Substance to Goldfish," also read by Doctor Goddard.

A demonstration of the criminal type in a paper entitled "Twenty-Five Prisoners," read by Doctor Hawkins.

Following the discussion of these various papers the meeting adjourned for the usual light refreshments. In the absence of the regular secretary, Dr. C. O. Bishop discharged the function of this office in a very able manner. Further meetings of the society will be suspended until September.

L. H. FRASER, *Secretary*.

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RIVERSIDE COUNTY

At the last meeting of the Riverside County Medical Society, held June 8, the following resolution was unanimously adopted:

Whereas, It has become necessary to chronicle the tragic death of our friend and colleague, Dr. Will H. Holmes and his wife, Louise, we desire at this time to pay tribute to their worth and express our profound sorrow at their untimely passing.

Will H. Holmes was a worthy representative of our profession in every respect. He was a loyal friend, a useful citizen, and a christian gentleman. Mrs. Holmes was a devoted wife and mother, and a very public-spirited and useful woman.

Our society, the Community Hospital staff, their church, his club, and their community have all been enriched by their lives.

We desire to express our sincere sympathy to Mary Louise and their other loved ones in this time of bereavement which we share with them in no small degree.

T. A. CARD, *Secretary*.

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SACRAMENTO COUNTY

The regular May meeting of the Sacramento Society for Medical Improvement was held at the Elks' Club on Tuesday evening, May 19, at 8:30 o'clock.

Sixty-two members were present.

The meeting was called to order by the president, Dr. Philip G. Young. The minutes of the last meeting were read and approved.

There being no case reports, the president introduced Dr. LeRoy C. Abbott, professor of orthopedics, University of California Medical School, as the speaker of the evening.

Doctor Abbott's paper dealt with the treatment of crippling conditions in childhood and with special reference to leg-lengthening. The apparatus used in leg-lengthening was described in detail, and the superiority of the four-pin method over the older two-pin method demonstrated. To make his paper clear, Doctor Abbott showed moving-picture films on the screen. These pictures made the operative procedure easier to visualize. Many crippling conditions were

pictured before and after operation, and some of the results were little short of marvelous.

Doctors Haig and Wallerius voiced their appreciation of this interesting paper.

FRANK WARNE LEE, *Secretary*.

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SAN BERNARDINO COUNTY

The regular meeting of the San Bernardino County Medical Society was held at Patton on June 2.

Dinner was served at 7 p. m., there being ninety-two members and guests present.

Grace was said by the Rev. Dr. Ide of the Congregational Church in Redlands.

After dinner Doctor Webster opened the meeting at 7:50, introducing Dr. J. M. Toner, director of state institutions, who gave a very interesting talk on the subject of the various institutions under his direction.

Dr. H. Hill then introduced Dr. G. Porter of the State Department of Health, who spoke on "Whole-Time Health Officers," following which Dr. C. G. Hilliard, chairman of this committee, made a resolution that the San Bernardino County Medical Society go on record as favoring a full-time health officer. Dr. A. T. Gage seconded this resolution.

The meeting place was then changed to the assembly hall for the business and scientific program of the evening.

The scientific program was presided over by Doctor Webster.

A paper on "The Treatment of Paresis and Allied Conditions" was presented by Dr. F. H. Garrett. Discussion by Dr. G. M. Webster and members of the staff followed.

The next paper, "Dementia Praecox and Schizophrenia" by Dr. F. F. Williams, was discussed by Doctor Pond and the staff.

At the conclusion of this program a motion was made by Dr. C. G. Hilliard on behalf of the San Bernardino County Medical Society and seconded by Dr. W. W. Roblee on behalf of the Riverside County Medical Society thanking Doctor Webster for a most enjoyable and instructive evening.

E. J. EYTINGE, *Secretary*.

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SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening, May 7, at 8:30 o'clock, in the Medico-Dental clubrooms, 242 North Sutter Street, Stockton. Dr. G. H. Rohrbacher, president, presiding.

The minutes of the previous meeting and those of a special meeting of the board of directors, held on May 5, were also read and approved.

Dr. J. W. Barnes, delegate, read a report of the state convention held at San Francisco. Dr. Barton Powell added a further report covering the section meetings of the eye, ear, nose, and throat group.

The first paper of the evening was read by Dr. S. F. Priestley on "Pre- and Postoperative Treatment." Doctor Chapman opened the discussion.

A paper entitled "Strabismus From the Standpoint of General Medicine" was read by Dr. Dohrmann K. Pischel of San Francisco. Another paper, "Nasal Sinus Disease From the Standpoint of General Medicine," was read by Dr. Harold A. Fletcher of San Francisco. Both papers were opened for discussion by Barton Powell, Sr., followed by Doctors Hanson, Priestley, Broadus, Barton Powell, Jr., Sheldon and Sanderson.

There being no further business the meeting was adjourned and refreshments served.

C. A. BROADUS, *Secretary*.

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VENTURA COUNTY

The regular monthly meeting of the Ventura County Medical Society was held Tuesday, May 12, at the Ventura County Clinic building. The meeting was called to order by Doctor Smolt, vice-president.

Members present were: Doctors Achenbach, Bardill, Bianchi, Mosher, Welch, Hendricks, Rhymes, Smolt, R. M. Jones, Wright, W. S. Clark, Felberbaum, D. G. Clark, Armitstead.

Doctor Clark gave his report on the state medical convention held at San Francisco, commenting especially on the activities of the cancer work, and also the resolution which advocated dropping the requirements of active training for reserve medical officers.

Doctor Langley presented a paper on cardiac pain, with special reference to coronary sclerosis, coronary thrombosis, and angina pectoris. The paper was well received.

R. B. ARMITSTEAD, *Secretary*.

CHANGES IN MEMBERSHIP

New Members

Alameda County—Hermon Adler, Harry Christie Aitken, Ina Gourley, Sidney N. Parkinson, Harry McKay Pier, Arthur L. Teeter.

Contra Costa County—Robert J. P. Harmon, John B. Spalding.

Fresno County—Jasper McAdory Humphreys.

Los Angeles County—

Vestal Rand Abraham	Joseph D. Heitger
William C. Bruff	Lester O. Houghten
Marjorie B. Burnham	Joseph Herbert Marks
Wells Clifford Cook	Nestor A. Michelena
Wilbur Jonathan Cox	Erwin Douglas Pratt
Ben R. Dysart	William Russell Quinn
Robert J. Ertel	Stephen T. Ragan
Theodore Herzl Goldman	Frederick P. Shafer
Charles Michael Hayes	Walter James Sullivan

Monterey County—Margaret Swigart.

Orange County—Rodes Estill Yager.

Riverside County—Newman Kennedy Bear, Berryman Green, Jr.

Sacramento County—Enichi Yamao.

San Bernardino County—John Asher Wallace, Rodney Frederick Wood.

San Diego County—Charles W. Rees, E. Minton Fetter, Einor H. Christopherson.

San Francisco County—Dorothy J. Starks, Oscar F. Nolan, Caleb Clifford Hedberg, James K. Hazel.

San Mateo County—Joseph M. Dallal.

Siskiyou County—William C. McBride, Jr.; D. D. Todorovic.

Stanislaus County—Oscar J. Hansen.

Transfers

Adolph B. Baer, from San Francisco to San Mateo County.

Arthur N. Donaldson, from Santa Clara to Los Angeles County.

Samuel C. Glassman, from Kern to Los Angeles County.

Marion O. Hooker, from San Francisco to Santa Barbara County.

James W. Morgan, from Stanislaus to San Francisco County.

Eva M. Shively, from Sacramento to Ventura County.

Raymond E. Tatro, from Los Angeles to San Bernardino County.

Deaths

Deal, Louise Bacon. Died at San Francisco, June 16, 1931, age 66 years. Graduate of Cooper Medical College, San Francisco, 1894. Licensed in California, 1894. Doctor Deal was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Holmes, Will Hammond. Died at Riverside, June 5, 1931, age 44 years. Graduate of Northwestern University Medical School, Chicago, 1911. Licensed in California, 1912. Doctor Holmes was a member of the Riverside County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Lewitt, Frederick Clinton. Died at San Francisco, June 16, 1931, age 48 years. Graduate of University of California Medical School, San Francisco, 1908. Licensed in California, 1908. Doctor Lewitt was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Moseley, Gayle Graham. Died at Redlands, June 17, 1931, age 57 years. Graduate of Kentucky School of Medicine, Louisville, 1894. Licensed in California, 1899. Doctor Moseley was a member of the San Bernardino County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Northrup, Fred Detmar. Died at South Pasadena, June 7, 1931, age 56 years. Graduate of Kansas City Hahnemann Medical College, 1904. Licensed in California, 1914. Doctor Northrup was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION*

National Officers of Woman's Auxiliary

President—Mrs. Arthur B. McGlothlan, St. Joseph, Missouri. (Elected last year.)

President-elect—Mrs. Walter Jackson Freeman, Philadelphia, Pennsylvania.

First vice-president—Mrs. James Blake, Hopkins, Minnesota.

Second vice-president—Mrs. James F. Percy, Los Angeles, California.

Third vice-president—Mrs. J. Ralston Wells, Daytona Beach, Florida.

Fourth vice-president—Mrs. Robert W. Tomlinson, Wilmington, Delaware.

Recording secretary—Mrs. S. S. Hesselgrade, St. Paul, Minnesota.

Treasurer—Mrs. G. Henry Mundt, Chicago, Illinois.

Councilors-at-Large and District Councilors of Woman's Auxiliary.—The following are the councilors-at-large and the district councilors of the Woman's Auxiliary elected at the annual session:

Councilors-at-large—Mrs. F. E. Clough, 3252 Rita Avenue, San Bernardino; Mrs. Henry S. Rogers, 930 I Street, Petaluma; Mrs. A. M. Henderson, 1600 M Street, Sacramento; and Mrs. Philip S. Doane, 855 Oak Knoll Circle, Pasadena.

District councilors—First District: Mrs. Lyell C. Kinney, Box 202, La Mesa. Second District: Mrs. John V. Barrow, 142 South Windsor Street, Los Angeles. Third District: Mrs. C. P. Proudfoot, Box 817, San Luis Obispo. Seventh District: Mrs. Louis H. Dyke, 6808 Ross Avenue, Oakland. Eighth District: Mrs. F. Scatena, 1400 Forty-first Street, Sacramento. Ninth District: Mrs. W. L. Blodgett, 221 Lincoln Avenue, Calistoga.

Panoramic View of the Woman's Auxiliary to the American Medical Association Regarding Work in California.—California has been concerned, aside from organization, with establishing itself upon a permanent foundation through a proper Constitution and has been able to do this with the full support of the California Medical Association, who are printing these Constitutions as a gift to the state auxiliaries.

At the recent state meeting, held in San Francisco April 27-30, 165 women registered, with 55 delegates

*As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of their officers should be forwarded to the state recording secretary, Mrs. Maynard Harding, 4529 Rhode Island Street, San Diego. Brief reports of county auxiliary meetings will be welcomed by Mrs. Harding and must be sent to her before publication takes place in this column. For lists of state and county officers see advertising page 6.

and 115 women seated at the annual luncheon. The auxiliary now feels safely launched and on an even keel.

The keynote of each county report was education, but the social side, welfare work, Red Cross, changing the position of a state senator, creating sentiment for a tuberculosis sanatorium, local philanthropies—all had their places with the scientific programs. A chart, "The Technique of Following a Bill Through the Legislature," provided a most unique, striking and valuable object lesson of information as to what we are all up against in our legislatures and their procedure. This subject is highly recommended to all organizations.

A resolution was introduced and adopted and directed to the National Committee on the "High Cost of Medical Care," asking for a change in the name under which the committee functions to one more in accord with the facts they are studying, namely, "The High Cost of Illness or Sickness." The original name implies some fault of the medical profession: while the proposed name is inclusive of all the various factors involved in the problem. A copy has been sent to the national auxiliary asking their indorsement of said resolution at the Philadelphia convention. The California Medical Association are presenting a similar resolution to the House of Delegates of the American Medical Association, whose membership now closely approaches nine hundred.

The interest shown and the friendliness in the social life at this convention demonstrated a new order which we hope has come to stay.

Mrs. JAMES F. PERCY.

Los Angeles County

Preceding the regular meeting of the Woman's Auxiliary to the Los Angeles County Medical Association on June 18 the board of directors of the auxiliary entertained at luncheon in honor of Mrs. Frank E. Coulter of Santa Ana, state president-elect. The guests included the following state officers: Mrs. W. H. Sargent, president, Oakland; Mrs. Frank E. Coulter, president-elect, Santa Ana; Mrs. Maynard Harding, recording secretary, San Diego; Mrs. Chester J. Teass, treasurer, San Luis Obispo; Mrs. F. E. Clough of San Bernardino, Mrs. Philip Schuyler Doane of Pasadena, Mrs. A. M. Henderson of Sacramento, councilors-at-large; Mrs. Lyell C. Kinney of San Diego, Mrs. John V. Barrow of Los Angeles, Mrs. C. P. Proudfoot of San Luis Obispo, district councilors; and Mrs. Frederick Scatena, Sacramento.

Mrs. Philip Schuyler Doane introduced Mrs. Coulter with the gracious request that she give her impressions of the Los Angeles County Auxiliary. "Do we fulfill your mental picture?" Mrs. Doane inquired. And Mrs. Coulter gave full assurance that the picture was amply filled.

Mrs. Doane made the gratifying announcement that our own Mrs. James F. Percy, first president of the Los Angeles County Auxiliary, state president for the past year, had been elected second vice-president of the national auxiliary at the meeting at Philadelphia this month.

The visiting state officers were introduced; also Mrs. Irma Wann Buwalda, who was the speaker of the afternoon.

Mrs. Doane opened the meeting and gave a keen, practical talk about our work. She read the list of the new Nominating Committee: Mrs. John V. Barrow, chairman, Los Angeles; Mrs. O. E. Grist, Glendale; Mrs. Scott B. Gleeton, Monrovia; Mrs. Hiram B. Tebbetts, Los Angeles; Mrs. Clifford A. Wright, Los Angeles.

State President Mrs. W. H. Sargent and President-elect Mrs. F. E. Coulter were presented and following their pleasant responses Mrs. Doane introduced the speaker, Irma Wann Buwalda. Mrs. Buwalda is a graduate of the Law School of the University of California, a noted lecturer in the University Extension

Course, an authority on prison reform, and one of the five directors in this country of the International Association of Policewomen.

This country has a crime complex, she said. Any kind of crime is public ammunition for press, pulpit, platform, and populace. Our prisons today are finishing schools for criminals—postgraduate courses where tyros are made masters in crime. The criminal today is no longer a moron—an educated business man, indeed, thanks to our legal shortcomings.

She extolled the new prison plan for women which will be developed not far from Tehachapi in the near future, and expressed the hope that no paroles would be granted without the opinion of a medical expert.

Mrs. Doane then rose to close the meeting, saying: "There are indeed two classes of criminals—the caught and the uncaught." She announced that the auxiliary would take a recess until the autumn. "I bid you good-bye until October."

But before leaving, the members and guests gathered about the beautiful tea tables for an hour of happy camaraderie.

CORA YOUNG WILLIAMS,
Publicity Chairman.

Orange County

The Woman's Auxiliary to the Orange County Medical Association held its May meeting at the home of Mrs. Herbert Johnston in Anaheim. We were fortunate in having Mrs. Dexter R. Ball, retiring state secretary-treasurer, present to give an account of the meetings of the state convention. She and Mrs. James Percy, who was also present, gave an interesting and charming description of the convention. The auxiliary was very enthusiastic over the election of Mrs. F. E. Coulter, our president, to the position of state president-elect.

That evening the auxiliary was the guest of the Orange County Medical Association at a dinner in McFarland's Cafe in Fullerton. The auxiliary contributed part of the program, while the doctors had several speakers from Los Angeles, who gave the report of the delegates to the convention. The entire evening was a great success and decidedly interesting.

NEVADA STATE MEDICAL ASSOCIATION

W. A. SHAW.....	President
R. P. ROANTREE, Elko.....	President-Elect
H. W. SAWYER, Fallon.....	First Vice-President
E. E. HAMER, Carson City.....	Second Vice-President
HORACE J. BROWN.....	Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....	Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

Washoe County Medical Society held its last semi-annual meeting on the night of June 9 at the Nevada State Building.

Dr. Earle Creveling, president, occupied the chair. The president called upon Dr. John E. Wright, graduate of Guy's Hospital Medical College, London, England, and lately from the Holberton Hospital, Antigua, British West Indies, who read a paper on "Tetanus," based upon a personal experience of forty cases in five years' service at the Holberton Hospital.

Doctor Wright's paper was very appropriate, now that the toy pistol and firecracker season incident to July Fourth is on with the American boy. (Editor's Note: Secretary Bath's report on Doctor Wright's address will be printed in the Clinical Notes department in a later issue of CALIFORNIA AND WESTERN MEDICINE.)

After the address by Doctor Wright, the society adjourned until September 8, 1931.

THOMAS W. BATH, Secretary.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM L. RICH, Salt Lake City.....President
 R. A. PEARCE, Brigham City.....President-Elect
 M. M. CRITCHLOW, Salt Lake City.....Secretary
 J. U. GIESY, 701 Medical Arts Building,
 Salt Lake City.....Associate Editor for Utah

OFFICIAL NOTICE

Doctors Critchlow, Pearsall, and Lindem of the Program Committee announce the following list of speakers for the coming state meeting:

Harlow Brooks, M. D., New York.
 Glen E. Cheley, M. D., Denver, Colorado.
 B. E. Bonar, M. D., Salt Lake.
 Howard Morrow, M. D., San Francisco.
 W. E. Stallings, M. D., Boise, Idaho.
 A. J. Carlson, M. D., University of Chicago.
 Chauncey D. Leake, M. D., University of California.
 A. L. Smith, M. D., Ogden.
 Ed Le Compte, M. D., Salt Lake City.
 Mr. O. F. McShane, State Industrial Commission,
 Salt Lake City.
 Belle Gemmill, M. D., San Diego, California.
 Lenord E. Wolters, M. D., Los Angeles, California.
 William C. McCarty, M. D., Rochester, Minnesota.
 A. Steindler, M. D., Iowa City, Iowa.

Postgraduate courses will be given in the afternoon periods of September 9, 10, and 11, with a public meeting the evening of the 9th. Postgraduate work will be in the hands of Doctors Brooks, Steindler, McCarty, Stallings, Wolter, and Morrow.

BOX ELDER COUNTY

A meeting of the Box Elder County Medical Society was held in Brigham City May 14, with the following members present:

Doctors A. D. Cooley, Odeen Luke, R. A. Pearse, E. A. Weymuller, T. E. Betensen, and E. H. White.
 Dr. Reese Merrell was admitted into the society by his card from the Carbon County society.

Attorney Lewis Jones was the speaker of the evening. He discussed the legal phases of abortion. He said that in the past few years the courts had taken a more liberal interpretation of the law on this subject. He also stated that there was no law in the State of Utah against the doctors giving contraceptive advice.

It was voted to make this the last meeting for the summer, until after the state meeting in September.

R. A. PEARSE, *Secretary*.

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SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held Monday evening, May 25, at the Holy Cross Hospital.

The meeting was called to order by President F. M. McHugh. Thirty-seven members and six visitors were present.

The clinical program was as follows: "Malignant Hypertension," by R. M. Tandowski; "Carrel-Dakin Treatment of Wounds," by J. A. Phipps; "Avulsion of the Tibial Tubercle," by J. J. Galligan; "Multiple Abscesses of the Kidney with Septicemia," by W. G. Schulte, and F. A. Goeltz; "Pathologic Specimens," by T. A. Flood.

Motion by Dr. O. J. LaBarge that the society send a letter of condolence to the family of Doctor Worthin was seconded and carried.

J. P. Tuttle moved that a letter of condolence be sent to the family of Doctor Prentiss. This motion was seconded and carried.

* * *

The regular semiannual business meeting of the Salt Lake County Medical Society was held Monday evening, June 8, at the Newhouse Hotel.

The meeting was called to order by President F. M. McHugh at 8:05 o'clock. Forty-seven members were present.

The reports of the committees on Public Health and Legislation, Necrology, Library, Boy Scouts, and Telephone were accepted and filed.

The Medical Economics Committee, Dr. E. M. Neher, chairman, reported that it was still investigating the organization of various credit bureaus. This report was discussed by Dr. Fred Stauffer.

The report of the fee schedule committee was read by Dr. M. M. Critchlow in the absence of Dr. J. P. Kerby. Dr. F. H. Raley moved that the report be accepted and the recommendations outlined be adopted. This motion was discussed by Doctors A. C. Callister, V. P. White, L. E. Viko, and R. W. Owens. Dr. Fred Stauffer amended the motion to read that that portion of the report be adopted referring to the instruction of the delegates to the Utah State Medical Association and that the rest be referred back to the committee for further investigation. Amendment seconded and carried and motion carried.

The reports of the Law Enforcement Committee and Program Committee were accepted and filed.

Dr. L. E. Viko discussed at length the charity work performed by physicians, mentioning the fact that usually such work was accredited to various charity agencies and that the public frequently were led to believe that the physicians were paid by the agencies for this medical care. He mentioned the necessity during such an economic depression as is being experienced at the present time of informing the people how to reduce their dietary expenses without endangering their health. He suggested that a committee was needed to investigate the facts in regard to the necessity for increased charity medical services during the depression and to specifically recommend measures to provide for adequate care for indigents which will give to the physicians the credit due them. Dr. L. E. Viko moved that such a committee be appointed. This motion was discussed by Dr. A. C. Callister. Dr. F. A. Goeltz amended the motion to read that the chairman of this committee be made the representative of the Salt Lake County Medical Society on the Community Chest Board and that the Community Chest Board be requested to admit this member to the board. The amendment was seconded and carried and motion carried.

The society then proceeded to the election of delegates to the state convention.

Dr. J. Z. Brown moved that the thirteen receiving the highest number of votes be elected delegates and the next three be elected alternates. Motion seconded and carried.

The following delegates were elected: From the L. D. S. Hospital—Doctors L. E. Viko, E. L. Skidmore, A. C. Callister, Wilkie H. Blood, L. A. Stevenson, J. R. Lewellyn, Fred Stauffer, O. J. LaBarge, Roy Groesbeck, and S. C. Baldwin. From the Saint Marks Hospital—F. J. Curtis, F. A. Goeltz, H. P. Kirtley. The following alternates were elected: Doctors J. P. Kerby, F. R. Slopansky, and E. R. LeCompte.

Following the election, refreshments were served and the meeting adjourned at 10 o'clock.

BARNET E. BONAR, *Secretary*.

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WEBER COUNTY

The Weber County Medical Society was honored by having Dr. Robert C. Coffey as its guest on the night of May 21. Invitations had been sent to the members of other county societies to be present and quite a number of visiting members attended the banquet and meeting held in the Bigelow Hotel.

After the dinner Doctor Coffey addressed the visitors and members on the subject of "The Field of Usefulness of Gauze Drainage and the Quarantine Pack in Connection with Abdominal and Pelvic Surgery." This was a most excellent and instructive paper and was greatly enjoyed. The unusually large attendance of members present was another factor which rendered the meeting a success.

CONRAD H. JENSEN, *Secretary*.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

The American College of Physicians in San Francisco in 1932.—The American College of Physicians will hold its sixteenth annual clinical session at San Francisco, with headquarters at the Palace Hotel, April 4 to 8, 1932. Following the clinical session, a large percentage of the attendants will proceed to Los Angeles, where a program, principally of entertainment, will be furnished April 9, 10, and 11.

Announcement of the dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White of Minneapolis is president of the American College of Physicians, and will arrange the program of general sessions. Dr. William J. Kerr, professor of medicine at the University of California Medical School, San Francisco, is general chairman of local arrangements, and will be in charge of the program of clinics. Dr. Francis M. Pottenger of Monrovia is president-elect of the college, and will be in charge of the arrangements at Los Angeles. Mr. E. R. Loveland, executive secretary, 133-135 South Thirty-sixth Street, Philadelphia, Pennsylvania, is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming session.

The Northern District Eye, Ear, Nose, and Throat Society was organized on April 14, 1931. Physicians practicing this specialty and resident in the territory which extends from Merced and Vallejo on the south, to Chico on the north, are eligible for membership.

At the first meeting on April 14 Dr. Charles McKee presented some interesting cases for discussion and Dr. William Ellery Briggs gave reminiscences on early ophthalmological work.

At the second meeting Dr. T. W. Kelsey discussed acute otitis media, from a classification viewpoint, and Dr. John W. Green reviewed acute mastoiditis.

The next regular meeting will be held at Hotel Clark, Stockton, on June 9. The following papers will be presented:

"Zinc Ionization Treatment of Chronic Suppurative Middle Ear," by Dr. C. A. Broadbush.

"Nonsurgical and Dry Treatment of Chronic Suppurative Middle Ear with Iodin Powder," by Dr. H. L. Gregory.

"Fractures of the Face Involving the Nasal Accessory Sinuses, with Case Reports," by Dr. Dewey R. Powell.

The following are officers of this northern district group: Dr. William Ellery Briggs, chairman; Dr. George Spencer; Dr. J. Roy Jones, secretary.

Clinical Tropical Medicine.—A special course in clinical tropical medicine will be held at the Hospital for Tropical Diseases, 25, Gordon Street, London, W. C. 1, from October 5 to October 23, 1931.

On the mornings of Tuesday and Thursday of each week, from 10 to 12, students may occupy themselves with a study of the clinical cases in the Hospital for Tropical Diseases, and museum demonstrations will be given under the direction of the medical superintendent and the clinical assistant.

The following subjects will be studied: enteric fever, undulant fever, phlebotomus fever, dengue fever, yellow fever, beriberi, pellagra, amebic abscess, heatstroke, yaws, ulcerating granuloma, climatic bubo, filariasis, with differential diagnosis of the fevers.

The fee for the course is about \$41. Those who wish to enroll for the course should address the Secretary of the Fellowship of Medicine at No. 1, Wimpole Street, London, W. 1.

University of California Medical School, San Francisco.—Changes in faculty, effective July 1, 1931:

CHANGE IN TITLE

W. S. Franklin, from clinical professor of ophthalmology to emeritus clinical professor of ophthalmology.

PROMOTIONS

E. H. Falconer, from associate clinical professor of medicine to clinical professor of medicine.

E. S. Kilgore, from associate clinical professor of medicine to clinical professor of medicine.

H. Lisser, from associate clinical professor of medicine to clinical professor of medicine.

E. W. Twitchell, from associate clinical professor of neurology to clinical professor of neuropsychiatry.

J. L. McCool, from associate clinical professor of ophthalmology to clinical professor of ophthalmology.

Mary E. Botsford, from associate clinical professor of anesthesia to clinical professor of anesthesia.

Miriam E. Simpson, from assistant professor of anatomy to associate professor of anatomy.

S. F. Cook, from assistant professor of physiology to associate professor of physiology.

D. M. Greenberg, from assistant professor of biochemistry to associate professor of biochemistry.

Rachel L. Ash, from assistant clinical professor of medicine and pediatrics to associate clinical professor of medicine and pediatrics.

H. Harris, from lecturer in medicine to associate clinical professor of medicine.

Eva C. Reid, from assistant clinical professor of psychiatry to associate clinical professor of psychiatry.

F. C. Cordes, from assistant clinical professor of ophthalmology to associate clinical professor of ophthalmology.

E. Ogden, from instructor in physiology to assistant professor of physiology.

I. L. Chaikoff, from instructor in physiology to assistant professor of physiology.

D. W. Bennett, from instructor in medicine to assistant professor of medicine.

O. W. Jones, from instructor in surgery to assistant professor of surgery.

Jessie L. Delprat, from instructor in medicine to assistant clinical professor of medicine.

M. H. Hirschfeld, from instructor in neuropsychiatry to assistant clinical professor of neuropsychiatry.

W. D. Horner, from instructor in ophthalmology to assistant clinical professor of ophthalmology.

T. J. Lennon, from assistant in medicine to instructor in medicine.

E. J. Munter, from assistant in medicine to instructor in medicine.

H. M. F. Behneman, from assistant in medicine to instructor in medicine.

A. G. Bartlett, from assistant in medicine to instructor in medicine.

A. E. Gauthier, from assistant in medicine to instructor in medicine.

Hilda M. Davis, from assistant in medicine and pediatrics to instructor in medicine and pediatrics.
H. G. Marquez, from assistant in tropical medicine to instructor in tropical medicine.
A. B. Chinn, from assistant in medicine to instructor in medicine.
F. H. Cunha, from voluntary assistant in medicine to instructor in medicine.
F. C. Nass, from assistant in neuropsychiatry to instructor in neuropsychiatry.
A. M. Vollmer, from assistant in obstetrics and gynecology to instructor in obstetrics and gynecology.
Kathleen J. Atkinson, from assistant in medicine to instructor in medicine.

NEW APPOINTMENTS

J. F. Rinehart, assistant professor of pathology.
M. L. Montgomery, assistant professor of surgery.
N. Van Patten, lecturer in medical bibliography.
A. H. Rowe, lecturer in medicine.
A. E. Larsen, instructor in medicine.
F. C. Bost, instructor in orthopedic surgery.

LEAVES OF ABSENCE

R. L. Richards, lecturer in psychiatry, for the year 1931-32.
J. M. D. Olmsted, professor of physiology, from July 1, 1931 to December 31, 1931.
Esther Rosencrantz, associate professor of medicine, from July 1, 1931 to December 31, 1931.
Margaret Schulze, assistant professor of obstetrics and gynecology and pathology, from July 1, 1931 to December 31, 1931.

Annual Meeting of Pacific Association of Railway Surgeons.—The twenty-ninth annual meeting will be held in the Yosemite Valley, August 28-29. Headquarters, Hotel Ahwahnee. Ample accommodations will be afforded also at Camp Curry. A scientific and social program of particular attractiveness has been planned. Four or five chief surgeons of eastern railroads will be in attendance. The largest meeting in the history of the association is anticipated.
The Committee on Scientific Program consists of: Doctors Wallace I. Terry (Chairman), San Francisco; F. O. Butler, Eldridge; E. E. Hamer, Carson City; D. H. Moulton, Chico; and Philip Stephens, Los Angeles.
The Committee on Arrangements: Doctors A. M. Moody (chairman), San Francisco; R. L. Dresel, San Francisco; H. O. Hund, San Rafael; I. S. Ingber, San Francisco; Luther Michael, San Leandro; J. N. Osburn, Los Angeles; and L. E. Phillips, Palo Alto.
For further information, write to the association secretary, Dr. W. T. Cummins, Southern Pacific Hospital, San Francisco.

MEDICAL ECONOMICS

An Announcement to Members and to County Society Committees on Medical Economics

The Committee on Medical Economics of the California Medical Association was created for the purpose of investigating methods by which medical service, including hospitalization, is now being rendered to the people of California.
It was understood that the character of the service and the cost to those furnishing it and to those receiving it, where possible, be ascertained. The reasonable ability of the people to pay for medical service, naturally, is an important feature of the investigation.
There has been much written and many statements made on this subject that are without any factual foundation. There have been many interesting and sometimes fantastic systems proposed as a solution of all the difficulties in rendering adequate medical service to all people.
This committee gives sympathetic consideration to every suggestion made, but insists that assertions be backed by truth-proving facts. Of one thing the com-

mittee is firmly convinced and that is, that the problem of furnishing adequate medical care at a cost that people of moderate means can easily afford varies greatly in different communities within the borders of our own state. This being true the committee urges every county medical society to appoint a local committee to coöperate with the state committee and its subcommittees.
These local committees should investigate and report conditions in their own counties, send reports to the state committee and, above all things, they should refrain from approval of suggested plans until they have been subjected to analytical study and approval by the state society.
This column will be devoted to contributions on the subject, and while the state committee will carefully study every communication, the fact that it is printed here does not mean that the committee either approves or is responsible for it.

JOHN H. GRAVES, M. D.,
Chairman, California Medical Association
Committee on Medical Economics.

Los Angeles County Medical Association Contracts With the Metropolitan Water District

In the editorial column of this issue of CALIFORNIA AND WESTERN MEDICINE, as one of the items under "Comment on This and That" are some remarks on a proposed contract or arrangement entered into between the Los Angeles County Medical Association and the Metropolitan Water District of Southern California for the medical and surgical care of the employees of the latter organization. (See page 52.)
This venture is so unusual that it seems desirable that the account of the proposed plan, as given in the *Bulletin* of the Los Angeles County Medical Association, should be here reprinted. It is as follows:
"The Metropolitan Water District of Southern California, organized under the Metropolitan Water District Act for the purpose of building an aqueduct to bring water from the Colorado River to the coastal plains, includes eleven cities.
"Last February a representative of the district approached us with the request that the Los Angeles County Medical Association supply them with a minimum fee schedule on the basis of which our members would render service to their employees. They planned to collect from every employee a stated sum per month, to be expended for medical and hospital care for sickness and accidents not covered by the industrial compensation act, and decided to give each employee the privilege of selecting his own doctor from the members of the Los Angeles County Medical Association rather than making a contract with any one doctor or group. They stated that many of their employees would be people without means, who under ordinary circumstances would have to be taken care of by the municipal or county organizations or treated by the physician without remuneration. The average rate of pay for all employees of the district is estimated at \$150 per month.
"The Committee on Medical Economics recommended the proposition to the favorable consideration of the Council, which endorsed it in principle, and instructed the Fee Schedule Committee to prepare a schedule to meet the circumstances. After much discussion by the Council and the committees involved, a special committee was appointed to work out the final arrangements. The fee schedule for this work is as follows:

Office visit	\$ 3.00
Residence call	5.00
Mileage beyond two and one-half miles from the physician's office or home (one way) ..	1.25
Local hospital call	5.00
Telephone advice.....	1.50
History and physical examination.....	25.00
Written opinion.....	10.00 up
Consultation	25.00 up

Consultation with Metropolitan Water District representative: According to time consumed.	
Emergencies — intoxication, poisoning, asphyxiation, etc.....	10.00 up
Night work (when called between 8 p. m. and 7 a. m.): Twice ordinary schedule.	
Minor operations.....	5.00 up
Major operations (subject to special conditions)	150.00

"In view of the fact that the bills will be paid by the Water District, and that losses through uncollectible accounts will be eliminated, there will be a courtesy discount of 33⅓ per cent from this minimum fee schedule.

"The schedule for laboratory and x-ray fees was published in the *Bulletin* of May 19. It is also subject to the 33⅓ per cent discount.

"Bills should be rendered to the Water District for the full amount and they will deduct the discount.

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"The following regulations have been given to the employees of the Metropolitan Water District:

"Regulations.—Employees desiring medical attention will procure from the Water District a form similar to that shown below, two copies of which will be handed to the attending physician, who will mail one to the Metropolitan Water District on the completion of the case, or at the end of the month if the patient is still under treatment, and retain the other for his records.

"If in order to establish the diagnosis it becomes necessary to do more extensive history and examination work than is required at an ordinary office visit, or if special consultation or major operation is required, separate order forms must be furnished the doctor. In case of major operations, which would not ordinarily come within the minimum shown, the physician should take the matter up with the person signing the original order to have an understanding as to just what the charge will be. Reasonable latitude will be allowed the doctor in cases of emergency where delay might jeopardize the patient's life.

"In case the doctor decides that hospital attention is necessary, order will be issued by the Water District on the particular hospital requested by the employee, in accordance with the following schedule:

"'Bed in ward, \$4.50 per day.

"'In case doctor states it is necessary to have private room, maximum of \$6 per day.

"'Where necessary, cost of operating room will be allowed, as well as expenditures in connection with medical supplies and other expenses outside of the regular room and board.

"'Private nurses will be furnished in such cases as are deemed absolutely essential by the physician.'

"In case an employee desires accommodations in excess of this, the difference must be borne by the employee. In case of severe illness, in which hospital accommodations are not convenient, and if the employee's home is in the vicinity of his work, a nurse may be sent to his home, the expense being borne by the district; such expense, however, to be no greater than if he were sent to a hospital.

"Provisions will be made for artificial limbs and eyes under certain circumstances.

"*'Prolonged Sickness or Injury.*—In case of prolonged sickness or injury, medical, surgical, and hospital services under this coöperative arrangement shall not be furnished in excess of one year.

"*'Employee Must Remain Under Observation.*—When a sick or injured employee has left the service or the vicinity so that he can be no longer under observation by the officials of the district, any benefits to which he may otherwise be entitled under these regulations shall cease, but so long as he remains under supervision of the local physician employed by the

district, within the limit of one year after the accident or the commencement of his illness, such medical, surgical, and hospital services as he may be entitled to under these regulations and not covered by the Workmen's Compensation, Insurance and Safety Act of 1917, as amended, may be furnished and paid for from the medical fund.

"*'Obedience to Physician's Orders.*—Employees should obey the orders of the physician regarding treatment, and if disobedience of such orders results in an increased cost of treatment, the excess cost will not be paid by the district.'

1 1 1

"The following is quoted from the letter which the committee addressed to the Metropolitan Water District:

"'This schedule is submitted to your organization as the result of careful consideration by a special committee with the understanding that it is an attempt to arrive at a satisfactory basis for rendering proper medical care, together with fair compensation for the same.

Principle of Operation

"'It is understood that the practice of medicine and surgery by each member of the Los Angeles County Medical Association is an individual matter, and this schedule is in the form of a recommendation only to our members.

"'It is also understood that the fees as submitted are distinctly below the average of the approved fee schedule for private practice, and our purpose in this instance is motivated entirely by an effort to do our part in properly caring for the health of that portion of our population whose earning capacity and inadequate budgeting of their earnings might otherwise deprive them of proper care, or cause them to become indigent and thus be thrown upon the county taxpayer for such care as required.

"'These fees are for the care of ordinary, or what might be termed "typical" illness, by the general practitioner. Special circumstances will call for special arrangements regarding remuneration. Specialists' fees are not included in this schedule. Consideration is also to be given to cases in which unusual time is consumed in visits, whether in the office or elsewhere.'

"It is also the understanding that if the physician whom the employee desires to treat him does not care to render services in accordance with this schedule, he may submit bills to the Water District in accordance with the schedule and arrange with the patient to pay any excess.

Instructions

"'Each employee paying a hospital fee and desiring medical, surgical, or hospital attention should be furnished with forms, to be presented to the physician before treatment begins.

"'If in order to establish the diagnosis it becomes necessary to do more extensive history and examination work than is required at an ordinary office visit, or if special consultation or major operation is required, separate order forms must be furnished to the doctor.

"'The Metropolitan Water District of Southern California will not pay the cost of treatment of chronic or venereal diseases, nor of injuries received which are the result of alcoholism or misconduct, nor for dental work, nor for the examination for or the fitting of glasses or the furnishing of glasses, except in case of accidents not covered by the Workmen's Compensation, Insurance and Safety Act of 1917, as amended.

"'No encouragement should be given to employees to call a physician to treat trivial ailments simply because they have paid a hospital fee.

"'Physicians are requested and expected to coöperate with the district in limiting treatment to those who are legitimately entitled to it.'

CALIFORNIA STATE MEDICAL LIBRARY ACT—ITS TEXT *

ASSEMBLY BILL NO. 477

Introduced in the Assembly of the forty-ninth California Legislature on January 20, 1931, by Assemblyman Roy Nielsen. Passed the Assembly May 5, 1931. Passed the Senate May 14, 1931. Approved by Governor James J. Rolph, Jr., on June 9, 1931.

CHAPTER 699

An act to create a state medical library under the direction of the regents of the University of California, providing for the establishment of branches of said library and for the administration, maintenance, and support of the same, and making an appropriation therefor.

The people of the State of California do enact as follows:

Section 1. A state medical library is hereby created in and as a part of the library of the University of California and shall be known as the state medical library, said state medical library shall have its administrative headquarters in such place as the regents of the University of California may select, and shall have two branches, one in the city and county of San Francisco and one in the city of Los Angeles. Said state medical library shall be under the supervision and control of the regents of the University of California and shall be administered and conducted by the said regents of the University of California in conjunction with the medical school of said University of California.

Sec. 2. The regents of the University of California are authorized to provide suitable and necessary facilities for the storage and care of books, journals, manuscripts and exhibits, and to prepare, print and distribute suitable catalogues and other printed information of said state medical library and to appoint one or more assistant librarians to have direct supervision and control over the state medical library and its branches, and to fix the compensation of such assistant librarians. Said state medical library and its branches shall be available for the use of all legally registered physicians and surgeons resident in the State of California. The regents of the University of California are further empowered to establish and conduct, subject to such rules or regulations as the said regents may fix and adopt, a book package service in connection with said state medical library, by means of which, on request, any legally registered physician or surgeon resident in the State of California, or the librarian of any medical college approved by the state board of medical examiners, may borrow for temporary use books or periodicals in said library.

Sec. 3. The regents of the University of California are authorized to purchase scientific medical books and other publications, manuscripts and exhibits, to comprise the state medical library, with the advice of the state medical advisory board, which is hereby created.

The state medical library advisory board shall consist of the president of the University of California, the president of the state board of health, the president of the state board of medical examiners, the dean of the medical school of the University of California at San Francisco and the dean of the Los Angeles medical department of the University of California at Los Angeles, all acting ex-officio. The board shall select its own chairman, vice-chairman, and secretary. The state medical library advisory

board shall have authority to propose rules and regulations for the management and operation of the state medical library, but the same shall become effective only upon the approval of the regents of the University of California. The members of such board shall receive no compensation, but shall receive their actual and necessary expenses incurred in performance of their duties.

Sec. 4. The branch libraries to be established in the city and county of San Francisco and in the city of Los Angeles shall be established at the medical school of the University of California, in San Francisco, and at the Los Angeles medical department of the University of California. In expending funds received for the support of the state medical library the regents of the University of California shall expend an equal amount for the support of each of said two branches. The regents of the University of California shall not be obliged to provide for the support of said state medical library or expend moneys therefor except to the extent of such appropriations as may be directly provided therefor by this act or from time to time by action of the Legislature of the State of California, and to the extent that there are available other funds constituting or arising from gifts made in support and aid of said state medical library and accepted by the said regents.

Sec. 5. There is hereby appropriated and at the time this act takes effect and on the thirty-first day of July of each year thereafter, the state controller shall transfer from the board of medical examiners' contingent fund to the regents of the University of California for the support and maintenance of said state medical library, all unencumbered moneys in the board of medical examiners' contingent fund in excess of one hundred thirty thousand dollars. The moneys hereby appropriated shall be expended by the regents of the University of California with the advice of the state medical library advisory board for the purchase of books and other publications, exhibits, and supplies for the state medical library and for the payment of expenses of the members of the state medical library advisory board, the salaries of assistant librarians, and operating expenses. Nothing in this act contained shall be deemed to prevent the regents of the University of California from charging to persons who may draw books from said state medical library through its package service the actual costs of shipment, including costs of transportation.

CORRESPONDENCE

Subject of This Letter: A Further Report on Obstetrical Analgesia

To the Editor: In the May 1930 issue of CALIFORNIA AND WESTERN MEDICINE (page 331) was printed an outline of the author's method of obstetrical analgesia, which had then been in use for about four and one-half years. A short time ago, because of the good results reported by Dr. John S. Lundy of the Mayo Clinic with pentobarbital sodium (nembutal) as a preoperative sedative, this drug has been added to the technique, which is now as follows: When the patient is definitely in labor, with good pains, she is given pentobarbital sodium, grains $1\frac{1}{2}$, by mouth. About twenty minutes later she is given scopolamin (Roche), grain $\frac{1}{100}$, and magnesium sulphate 50 per cent, 2 cubic centimeters, intramuscularly. Thirty minutes later, magnesium sulphate 50 per cent, 2 cubic centimeters intramuscularly. Thirty minutes after this, scopolamin (Roche) $\frac{1}{200}$ and magnesium sulphate 50 per cent, 2 cubic centimeters. Thus, every hour

* For other information concerning this bill, see last month's (June) number of California and Western Medicine, page 417. Also editorial comment in this issue of California and Western Medicine.

the patient receives scopolamin, grain 1/200 (except for the first dose of grain 1/100), combined with magnesium sulphate 50 per cent, 2 cubic centimeters. At the half-hour intervals between the above, she is given magnesium sulphate 50 per cent, 2 cubic centimeters. As a rule no more than three doses of scopolamin are needed.

The result is a quiet, coöperative patient, in comparative comfort, who can be anesthetized with a minimum of the inhaled drug. A small number of patients at the Los Angeles General Hospital and in private practice, under this method have shown very satisfactory analgesia.

Very truly,
HARRY S. FIST.

1930 Wilshire Boulevard.

Subject of Following Letter: The Los Angeles Rabies Situation

(A letter from the director of the Hooper Foundation of Medical Research, University of California.)

To the Editor: In response to a letter which, at your suggestion, I received from Mr. Thomas F. Cooke, councilman of the second district, city of Los Angeles, I have prepared a statement, copy of which I herewith enclose, and which I have also sent to him. If there is any additional information you desire, I will be very glad to prepare it.

You will note from the last paragraph that in the handling of a rabies situation I recommend a series of steps to be taken before the city contemplates passing a muzzling and leashing ordinance. Without the whole-hearted, sympathetic support of the people and the humane societies, I am sure that any program, well as it may be planned, will be another failure. Then again, in order to administer the ordinance in a humane manner, it is imperative that the police force, which probably will act as the executive branch of the control measures, should be thoroughly instructed.

My position concerning preinfectional vaccination is also stated. I have tried to analyze the available data, but have found that such evidence is exceedingly contradictory. As it is definitely proven that vaccination alone will not be successful, it is just as well that the city decide to attack the problem of the stray dog and consider the vaccination a voluntary procedure to be used by the owners who believe in

Subject of Following Letter: Some Rabies Statistics From the Health Districts of the Los Angeles County Health Department

To the Editor: I am forwarding statistics on rabies as requested by you. However, I regret that our figures for the first six months of 1931 will not be ready for some time to come.

Very truly yours,
J. L. POMEROY, M. D.,
County Health Officer.
By N. P. Levin, M. D.

To the Editor: After telephone conversation with you I obtained figures on human rabies in Los Angeles County since 1925, which I am herewith enclosing for the reason that I feel that they may be of interest to you. The Epidemiology Division evidently overlooked including them in the figures which they supplied me yesterday, which were limited to dog rabies.

Very truly yours,
J. L. POMEROY, M. D.,
County Health Officer.
By N. P. Levin, M. D.

Human Rabies Since 1925—Los Angeles County

1926	Alhambra District	1
	Whittier District	1
	Redondo District	1
	Total	3
1927		0
1928	Glendale District	1
1929	Redondo District	1
1930		0
1931		1

Los Angeles City Rabies Statistics

On request by the editor, the following figures were sent him by the Health Department of the City of Los Angeles:

LOS ANGELES COUNTY HEALTH DEPARTMENT

Persons Bitten in the Year 1930 by Animals in Health District Subdivisions of the Los Angeles County Health Department

	Con- tacts	Persons Bitten	Given Emer- gency Treat- ments	Given Nitric Acid Treat- ments	Given Other Treat- ments	Given Pasteur Treat- ments	Fur- nished by Co. Health Dept.	Given by Co. Health Dept.	Given by Private Phys- icians
Alhambra District	41	293	271	208	63	59	26	26	32
Monrovia District	6	43	46	28	18	2	...	...	2
Pomona District	2	32	29	27	2	5	3	2	3
Whittier District	7	38	26	20	6	17	8	5	11
Huntington Park District	75	409	390	350	40	109	97	36	72
Compton District	35	151	143	125	18	49	36	14	33
Redondo Beach District	41	195	203	170	33	51	41	24	27
Santa Monica District	5	66	68	63	5	12	8	8	4
San Fernando District	4	27	28	26	2	5	4	1	3
Belvedere District	56	206	213	196	17	38	37	33	5
Glendale District	9	168	173	158	15	7	6	6	1
West Hollywood District	3	49	48	42	6	3	1	...	3
Outside territory	3	43	42	35	7	4	1	1	3
Total	287	1720	1680	1448	232	361	263	156	199

it. If you desire further information, please do not hesitate to call on me.

With kindest regards, I am,
Sincerely yours,
K. F. MEYER.

RABID ANIMALS

	1928	1929	1930
County Health Department area	216	175	295
Entire Los Angeles County	590	585	613

RABIES CONTROL DIVISION—CITY OF LOS ANGELES

Comparative Report of Dog Bites and Rabies for the years 1928, 1929, 1930, and January 1 to June 1, 1931					
Calendar Year	Total No. Persons Bitten	Rabid Dogs	Persons Bitten by Rabid Dogs	Persons Bitten by Stray Dogs	Human Deaths from Rabies
1928	2321	327	144	300	0
1929	2563	327	174	363	1
1930	2919	239	149	341	0
1931 (January)	288	19	15	30	0
(February)	227	22	10	31	0
(March)	413	27	10	55	0
(April)	414	25	12	46	0
(May)	621	27	23	62	1

	Emergency Treatments Nitric Acid	Other Treat.	Pasteur Treatments by City Laboratory
1928	1985	220	100
1929	2191	244	129
1930	2493	280	114
1931 (Jan. 1 to June 1)	1679	187	49

TWENTY-FIVE YEARS AGO*

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. IV, No. 7, July 1906

From some editorial notes:

County Societies.—Once more we desire to urge upon the attention of county societies, two things: First, the importance of developing the scientific side of their work along educational lines; and secondly, publicity. The County Medical Society should be the local postgraduate school. Its courses and its work should be so valuable that no member can afford to stay away, and no physician in the county can afford not to be a member. When this has been accomplished, then let the community know what you are doing. . . .

Scheme Beautiful.—One of the San Francisco papers recently published a scheme for the medical care of the unfortunate citizens who are still living in tent colonies in that city, which certainly must have come from the brain of a genius. Roughly, the plan beautiful was about this: Each camp was to have a general superintendent, at a salary of \$250 a month, two stenographers at \$60 a month, a few nurses at \$75 a month, and an allowance of about \$175 a month for postage, car fare, and sundries. The nurses, according to the philanthropic plan, should go about making investigations and inspections of certain specified areas, and when they found any sick or feeble persons, they should order the proper diet and secure the services of some nearby reputable physician, whose services would be *donated*. Lists of these "volunteer" physicians in each district would be made up so that the official nurses would have no difficulty in securing medical attendance promptly. Let everybody get some compensation—except the doctors! Of course! They do not need money; they do not need food; they are all rich; they are always giving their services anyhow, why not give some more? Probably no class of San Francisco citizens suffered as severely in the April catastrophe as did the professional class, and of these we may safely place physicians first, as over nine hundred of them lost either

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and new members.

their houses or their offices or both. They worked night and day—for nothing and without thought of reward. For weeks and months they gave their time and their labor without money and without price. . . .

To County Secretaries.—The secretary of the State Society desires to extend to each and every county society secretary his thanks, in advance, for their united assistance in reassembling the records of the State Society. It will be a difficult task, and it will throw more work upon the shoulders of the county society secretaries—gentlemen whose earnest work for the medical profession is seldom recognized. . . .

From an article on "Medical Licensure" by S. D. Van Meter, M. D., Denver, Colorado.

The history of legislation relative to statutes regulating the practice of medicine is most interesting, and a paper on medical licensure is incomplete without at least a reference thereto. . . .

. . . The first and most natural question to arise in such an investigation is, "*What should be the basis of medical licensure?*" It should not be difficult to answer this question, as it cannot be anything other than "*proof of a standard of educational and moral qualification and that will insure the proper medical care of the sick or injured.*" . . .

. . . In conclusion, permit me to urge the issue of medical licenses upon one basis, viz., that standard of educational and moral qualification which will insure the proper medical and surgical care of suffering humanity. Do not attempt to determine such qualification by any one method—use all rational means practicable; do justice to all; favor none; work hard for the appointment of good timber on examining boards; and keep all batteries in action against the quacks.

From medical society reports:

Shasta County Society.—Resolution of Dr. C. E. Reed, offered at our January meeting regarding letter of resignation of Dr. —, viz.:

It was resolved that his resignation be not accepted on account of disrespectful language to our society, and that his name be dropped from the roll of membership of this society because of his continued violations of our laws in accepting contracts and performing contract work for lodges and organizations, the proof of which is contained in his letter of resignation. . . .

Los Angeles Medical Library.—Through the generosity of Dr. W. Jarvis Barlow of Los Angeles the medical profession of Southern California has recently become the recipient of a twenty-five thousand dollar library building, which is now in the course of erection in Los Angeles. . . .

DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M. D., *Director*

The After-Care of Infantile Paralysis Cases.—The end results expressed in percentages of recovery of function following infantile paralysis depends chiefly upon two factors: First, the extent of damage to the nerve cells in the anterior horn of the cord at the time of the original infection; and second, the type of after-care to which these unfortunate individuals are subjected. The majority of these patients, fortunately, do not show a total destruction of these nerve centers, the nerve cells being only partially affected, in spite of the fact that the muscle group supplied from this center may show total inactivity in the initial stage. If this muscle group is immobilized and given complete, continuous and uninterrupted physiological rest in a neutral position over a sufficient length of time, then gradually reeducated, all of the possible recovery will take place and the maximum restoration of function occur. If, on the other hand, the case is denied the intelligent application of the above mentioned basic principles, it very often happens that a stretch paralysis is superimposed upon a neuromuscular paralysis and recovery is either retarded or permanently prevented. It is very common to see in the metropolitan centers cases in which neglect has resulted in the sacrifice of a large portion of possible repair, and cases in which either the original condition was entirely unrecognized or the importance of the general underlying fundamental principles of the after-treatment were likewise not understood. *Most paralytic deformities are preventable.*

It has been the pleasure of the undersigned to see a complete foot drop, resulting from poliomyelitis and neglect of splinting and protection which added a stretch paralysis to a neuromuscular paralysis, recover approximately 100 per cent function after a few months of proper treatment, in spite of the fact that several years had elapsed between the onset of disease and beginning of treatment. It is a well known fact that probably the majority of cases of infantile paralysis are of the abortive variety, and next in frequency, those resulting in a comparatively small amount of paralysis. A very appreciable percentage of the scoliosis cases seen in the orthopedic clinics are unquestionably the result of unrecognized infantile paralysis.

It is very difficult for patients to appreciate the fact that if a muscle group is strong enough to accomplish a certain function, that there could be an element of abuse present in overtaxing its power by repeatedly going through this motion. Use of a partially paralyzed muscle group is only beneficial up to a point of physiological fatigue, at which point further and continued activity produces retrograde change. A partially paralyzed patient who can walk one block without overtaxing a limited musculature can unquestionably entirely neutralize the benefits of the exercise by walking a second block.

Probably the most valuable single method of reeducating partially paralyzed muscle groups is the underwater gymnasium. The rapidity with which improvement becomes evident in these patients fortunate enough to have the benefit of such a pool is sometimes amazing. The benefit, however, is again in direct proportion to the finesse with which the prescribed movements are selected and supervised. The general activity of a child, as in swimming, has no particular benefit because, left to their own resources, they will develop the remaining active groups, resulting in further disproportion with those affected in the paralysis. Partially paralyzed muscle groups operate absolutely under the law of supply and demand and will improve only when a proper conservation is adhered to.

From braces which have an important phase in the proper care of partially paralyzed muscles, come

two great benefits: First, and perhaps the most important, is the maintenance of proper position by which a partially paralyzed group of muscles is not overbalanced by a comparatively stronger group which has been fortunate enough to escape the destructive influence of the causative agent of infection. Secondly, the mechanical help possible to obtain from the braces. In the early stages, the first is by far more important.

It is not uncommon to observe under proper treatment, functional improvement over a period of two, or even more, years following the inception of the disease, and the surgical reconstructive measures are seldom justifiable under eighteen months, or until sufficient time has elapsed under proper treatment, to allow an accurate estimation of the actual residual paralysis to be made.—Harold B. Barnard, M. D., Associate Chief of Staff of Orthopedic Hospital, Los Angeles.

Changed Hour for Heart Committee Broadcast.—The adoption of daylight saving time in eastern cities has necessitated a change in the hour of the radio broadcast sponsored by the Heart Committee of the San Francisco Tuberculosis Association. The new schedule is as follows:

KJBS—Tuesday, 11:15 to 11:30 a. m.

KFRC—Tuesday, 4 to 4:15 p. m.

Permanent Quarantine on Clams and Mussels.—The State Board of Public Health at its regular meeting held in San Francisco April 11, 1931, established a permanent quarantine upon clams and mussels during the months of June, July, August, and September of each year. This quarantine covers the entire California coast from Monterey County to the Klamath River in Del Norte County, with the exception of the bay of San Francisco.

Under the provisions of this quarantine order, the sale or offering for sale of clams and mussels gathered from the specified territory during the months of June, July, August, and September of each year is prohibited.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Director of the Board

News Items, July 1931

Citations have been issued calling the following licentiates before the board at its regular meeting to be held at Native Sons Hall, San Francisco, legal hearings scheduled for 10 a. m., Tuesday, July 7, and continuing until the calendar has been completed:

David M. Angus, M. D., Seattle. Record of conviction: Alleged illegal operation.

Schuyler A. Barber, M. D., Porterville. Record of conviction: Narcotic violation.

Silas J. Brimhall, M. D., Elsinore. Alleged narcotic violation.

Silvius S. Craig, M. D., Wilmar. Record of Colorado: Revocation.

Fay E. Cramer, M. D., Hawthorne. Federal narcotic conviction.

Cecil R. Drader, M. D., Greenville. Narcotic conviction.

Philip Dymont, M. D., San Diego. Record of revocation of Georgia State certificate.

Suzuno Eda, Midwife, Fresno. Violation of Subdivision 16 of Section 14.

Edgar Ewing, M. D., Huntington Beach. Plea of guilty to alleged narcotic violation.

William C. Fiske, M. D., Hermosa Beach. Plea of guilty to manslaughter charge.

William B. Hamilton, M. D., Salt Lake City, Utah. Based on Utah charges.

Orient C. Higgins, M. D., Porterville. Narcotic conviction.

Christopher Howson, M. D., Oakland. Aiding and abetting an unlicensed practitioner.

Denwood N. L. Newbury, M. D., Spokane, Washington. Narcotics.

Ralph Newcomb, M. D., Lakeport. Violation of probation.

Asa Frye Speicher, M. D., Los Angeles. Alleged narcotic violation.

David A. Stevens, M. D., Los Angeles. Record of conviction: Moral charge.

Darrington Weaver, M. D., Los Angeles. Narcotic conviction.

On June 11, 1931, Governor Rolph signed Senate Bill 131, which will prove a valuable addition to the statutes designed to limit to bona fide institutions the granting of professional degrees. Under the existing laws any individuals can incorporate and obtain the right to grant professional degrees, without financial responsibility, physical equipment or educational qualifications. Senate Bill 131 requires every institution that grants a professional degree to file annually with the Superintendent of Public Instruction a report giving the names of the faculty, curriculum taught, names and addresses of the students, the degrees conferred, and the names of the individuals upon whom the degrees have been conferred.

An investigation report relates that Raymond H. Albers, licensed chiropractor, on May 20 pleaded guilty in Vallejo to a charge of violation of the Medical Practice Act in that he failed to use the suffix "D. C." or the word "Chiropractor" in conjunction with his use of the prefix "Dr." and judgment was suspended on condition that he no longer violate the Medical Practice Act.

According to a Vancouver *Press* dispatch, printed in the San Francisco *Examiner* of May 26, 1931, Dr. Charles Bee Alexander is reported to have been sentenced to two years in the Washington State Penitentiary, asserted to have been based upon his alleged violation of the banking laws.

"The Tulare County Grand Jury today indicted Dr. S. A. Barber, sixty-one, Porterville physician, and Mrs. Jeannette Schwartz, a nurse, jointly, on two counts charging performance of two illegal operations on Miss Virginia Tarleton, nineteen, of Mendota, Fresno County. Doctor Barber is now serving an eight months' sentence in the Tulare County jail for the sale of narcotics to a Porterville woman. Suit was instituted today against Dr. Barber and Dr. O. C. Higgins, seventy-six, also of Porterville, by Dr. H. A. Todd, whose wife was sold narcotics, asking \$250,000 from the two of them for the alleged loss of the society and companionship of his wife, due to the narcotics they supplied her . . ." (Fresno *Republican*, May 21, 1931). (Previous entry, June 1931.)

According to reports, "Dr." Arthur M. Benson, also known as M. V. Benson, who was formerly connected with the concern known as the Gilbert Thayer Foundation in Los Angeles, is now alleged to be an inmate of the Columbia Reformatory, Lorton, Virginia, under the name of Edward M. Dodge, following his asserted conviction of violation of the narcotic laws. (Previous entry, February 1928, and June, 1930.)

Investigation reports relate that Benjamin A. Burrell, Vallejo, licensed chiropractor, on May 20 pleaded guilty to a violation of the Medical Practice Act, in that he failed to use the suffix "D. C." or the word "Chiropractor" in connection with the use of the prefix "Dr." and judgment was suspended on condition that he no longer violate the Medical Practice Act.

On May 25 E. E. Cary is reported to have been found guilty in Los Angeles of violation of the Medical Practice Act and was later sentenced to pay a fine of \$300 or serve fifty days in the city jail, sentence being suspended. He is reported as having left the state.

"W. J. Conway, Indian medicine man, was arrested this afternoon by J. W. Davidson, inspector for the State Board of Medical Examiners, on a warrant charging him with practicing medicine without a legal license. . . . The investigation came immediately following the death Tuesday of Mrs. Mary Marzola after she had taken medicine alleged to have been administered by Conway" (Previous entries, September 1929; January 1931.) Inspector Davidson closes his report with the following statement: "His records would lead us to believe that he does about \$100 to \$150 a day, and we can readily understand how he would be willing to pay a \$100 fine."

"Dr. O. C. Higgins, seventy-six, Porterville physician, was admitted to probation this afternoon by Judge Frank Lambertson on a charge of selling narcotics. Terms of probation include a \$750 fine, payable in three monthly instalments of \$250 each, beginning June 15, and a one-year suspended jail sentence. Doctor Higgins was arrested the afternoon of January 15, a few minutes after he sold Mrs. H. A. Todd of this city some morphin. State narcotic agents had supplied the Visalia woman with marked money, which she gave to Doctor Higgins in exchange for the drug" (Visalia *Times-Delta*, May 18, 1931).

"Charles Kent, erstwhile 'doctor,' conducting the 'Scientific Health Institute,' at 822 North Broadway, Santa Ana, where he advertised the cure of many serious ailments, from heart trouble, pneumonia and St. Vitus' dance to milk leg, paralysis and insanity, operated under a diploma characterizing him as a 'Doctor of Eliminopathy' and used only massage and a common household treatment of the intestines, it was disclosed yesterday when he pleaded guilty to practicing without a license and received a suspended sentence of sixty days in the county jail. A condition of the suspension is that he pay \$50 as a fine . . ." (Orange *News*, May 13, 1931). (Previous entry, June 1931.)

"Although he claimed he sold only Chinese herbal medicine, Lee Chong Wing, 142 East Washington Street, was convicted on charges of violating the Wright Act by Police Judge Johnson yesterday" (Stockton *Record*, May 27, 1931).

Chief White Eagle, charged in Long Beach with violation of the Medical Practice Act, pleaded guilty on March 2, 1931, and was sentenced to pay a fine of \$100 or serve one hundred days in the city jail, sentence being suspended for two years on condition of no further violation of the Medical Practice Act.

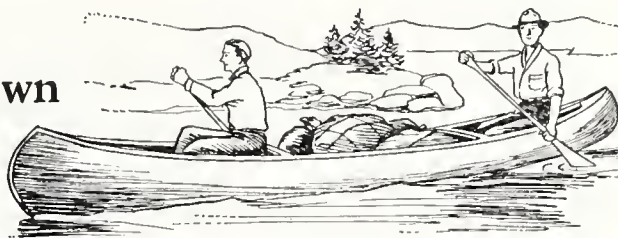
T. Foo Yuen, San Bernardino Chinese herbalist, on February 21, 1931, is reported to have pleaded guilty to a violation of the Medical Practice Act and sentenced to pay a fine of \$100, said sentence being suspended.

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TRUTH ABOUT MEDICINES

(Continued from Page 31)

Self-Rising Washington Flour (Wilkins-Rogers Milling Co., Washington, D. C.).—A mixture of wheat flour with baking powder leavening and seasoning—calcium acid phosphate, sodium bicarbonate, and salt. The flour is claimed to be adapted to biscuit, pastry, and cake-baking.—*Journal of the American Medical Association*, May 23, 1931, p. 1780.

Jerry's Kew-Bee Bread (Jerry's Bakery Co., Terre Haute, Indiana).—A white bread made by the sponge-dough method.

Page Evaporated Milk (Sterilized, Unsweetened) (The Page Milk Co., Merrill, Wisconsin).—An unsweetened evaporated milk. A mixture of one part water and one part of this product corresponds to the legal standard for whole milk.

(Continued on Page 37)

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TRUTH ABOUT MEDICINES

(Continued from Page 34)

Merrell-Soule Powdered Protein Milk (Boilable) (The Merrell-Soule Co., Inc., New York).—A powdered food made from milk; higher in protein and mineral salts, lower in lactose than dry whole milk. It is only slightly acid. The preparation is proposed for use in infant feeding.

Vermont Maid Bread (Vermont Baking Co., White River Junction, Vermont).—A white bread made by the sponge-dough method.

Staley's Golden Table Syrup (A. E. Staley Manufacturing Co., Decatur, Illinois).—A table syrup; a corn syrup base (glucose) flavored with choice refiners' syrup.

Staley's Crystal White Syrup (A Savory Blend of Pure Corn Syrup, Granulated Sugar Syrup, and Vanilla) (A. E. Staley Manufacturing Co., Decatur, Illinois).—It is a mixture of corn-syrup base (glucose) and sucrose, flavored with vanilla extract.—*Journal of the American Medical Association*, May 30, 1931, p. 1872.

PROPAGANDA FOR REFORM

Solvochin Not Acceptable for New and Nonofficial Remedies.—Solvochin (Spicer & Co., Glendale, California, distributor) is a solution of quinin hydrochlorid containing small amounts of quinin base together with sufficient phenoldimethylpyrazolon (antipyrin) to render the basic quinin soluble. It is claimed that the solution possesses advantage over the usual quinin preparations in that it may be injected without local irritation. It is recommended in the advertising as the medicament of choice in the treatment of lobar pneumonia, and it is claimed to be essential that the injections of quinin for the treatment of this disease be by the intramuscular route. The Council on Pharmacy and Chemistry declared Solvochin unacceptable for New and Nonofficial Remedies because it is marketed with unwarranted

therapeutic claims.—*Journal of the American Medical Association*, May 2, 1931, p. 1477.

Refined Antipneumococcus Serum.—Since the discovery of the etiologic relationship of the pneumococcus to pneumonia, the search for an effective antipneumococcus serum has continued unabated. Little progress was made in this direction until 1913, when the biologic classification of pneumococci by Dochez and Gillespie provided a rational basis for modern serum therapy in this disease. Reports on the use of refined and concentrated serum preparations bring evidence, showing that a considerable reduction in the mortality rate of Type I pneumonia is secured by the use of these preparations. Experiments with the Type II pneumonia, and particularly Types III and IV, were not favorable to the use of preparations representing these types. In conformity with the evidence, the Council on Pharmacy and Chemistry accepts antipneumococcus serum, representing Type I, but does not accept serums representing other types or mixtures of all types, holding that Type I serum alone is worthy of clinical trial.—*Journal of the American Medical Association*, May 2, 1931, p. 1505.

The Milo Bar Bell.—Those who study the fantastic advertisements of the "big muscle boys," appearing in such magazines as *Physical Culture*, will remember the pictures of the superman, with the musculature of an ox, holding aloft a particular brand of dumbbells known as the "Milo Bar Bell." From the advertising, one gathers that by the use of this particular device, the puniest and weediest of individuals can develop into veritable Samsons. It appears that the Milo Bar Bell Company, which exploits this device, is a trade name used by one D. G. Redmond. The Federal Trade Commission has issued an order to Redmond to cease and desist from: "Representing by pictures, statements or otherwise, that physical development, reasonably attributable to natural growth, has been brought about by the use

(Continued on Page 41)



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For the treatment and investigation of:
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Excerpts from American Medical Association Essentials for an Approved Clinical Laboratory

DEFINITION

" * * A clinical pathologic laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body."*

"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."

"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

THE DIRECTOR

"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

FEES

" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

The following laboratories in California are among those approved by the Council on Medical Education and Hospitals of the American Medical Association:

Clinical Laboratory of Drs. W. V. Brem, A. H. Zeiler and R. W. Hammack,
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Dr. Marion H. Lippman's Laboratory, Butler Building, 135 Stockton Street,
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The Western Laboratories, 2404 Broadway, Oakland.

These laboratories use only standard methods and are fully equipped with the most modern apparatus to make all clinical examinations of value in: Pathology (frozen sections when ordered), Bacteriology, Chemistry, Hematology, Serology, Medico-legal, Basal metabolism, Blood chemistry, Autogenous vaccines and all other laboratory aids in diagnosis.

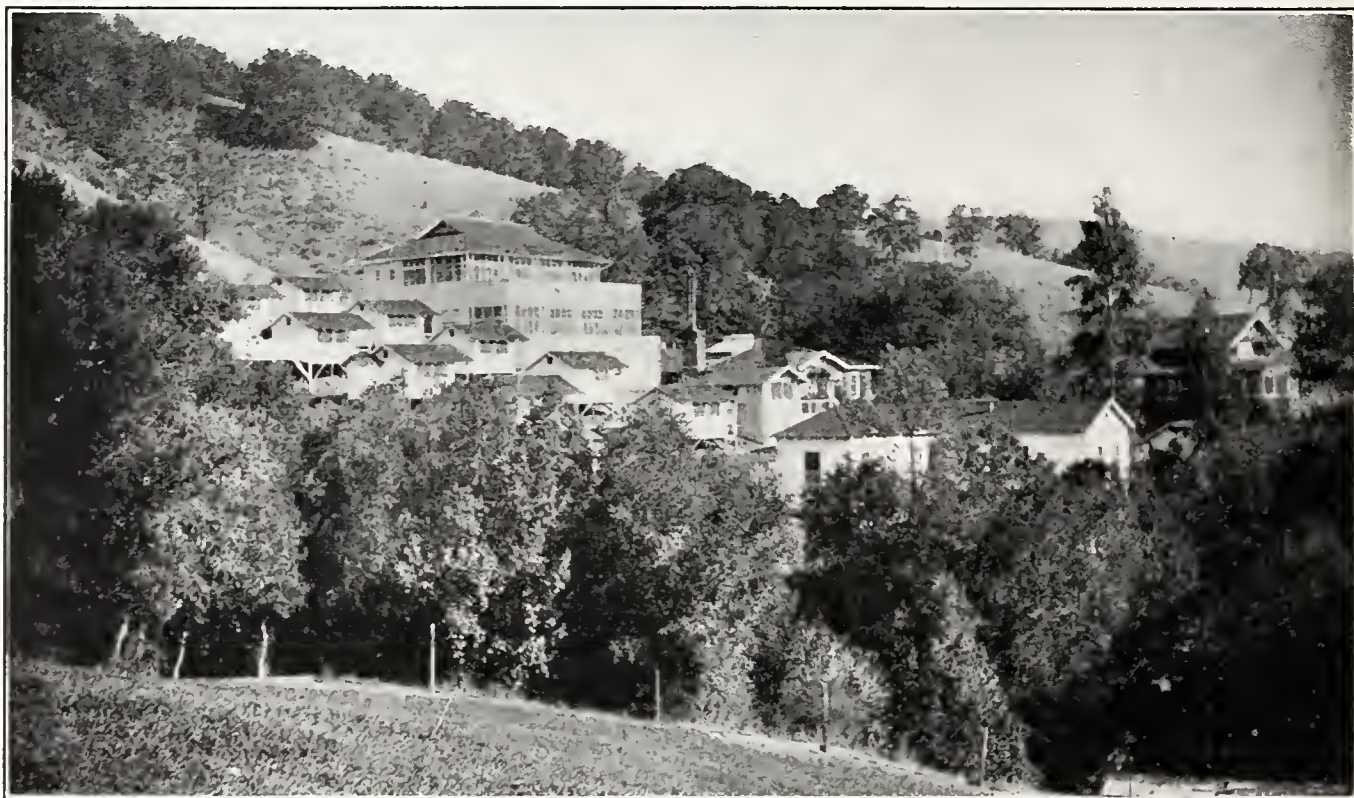
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Further details in relation to this subject and a supply of samples of Mellin's Food sent to physicians upon request.

Mellin's Food Company

Boston, Mass.

TRUTH ABOUT MEDICINES

(Continued from Page 37)

of respondent's bar bell or other appliance or course of instruction."—*Journal of the American Medical Association*, May 2, 1931, p. 1527.

Limitation of the Manufacture of Narcotic Drugs. In accordance with the provisions of the Hague convention of 1912, Congress made laws for controlling and regulating the production of and the traffic in the drugs mentioned by the convention. Now domestic production and traffic in these dangerous drugs is limited by federal law. The importation of opium and cocoa leaves into the United States is restricted. The enforcement of the laws have, however, not prevented the importation of drugs for illicit uses. Introduction of narcotic drugs by smugglers cannot be prevented until other countries control the manufacture and export of narcotic drugs adequately. To this end our government initiated the movement which resulted in the calling of the International Opium Commission at Shanghai in 1909 and since then has continued in its efforts along these lines. The manufacture of narcotic drugs must be limited to approximate medicinal and scientific needs. Physicians must aid in the determination of such needs by limiting their own prescribing to indispensable uses. The pitiful character of the drug addict and the association of drug addiction with crime and other menaces to the public welfare demand all the help that physicians can give in solving this problem.—*Journal of the American Medical Association*, May 9, 1931, p. 1623.

Ephedrin in Narcolepsy.—The use of ephedrin sometimes results in sleeplessness. Whereas this effect might contraindicate the use of ephedrin in some circumstances, it has seemed to indicate its utilization in others. For instance, ephedrin has been found effective in counteracting the results produced by some of the barbiturates and of morphin. Ephedrin has also been used in the treatment of narcolepsy and its related phenomenon, cataplexy.—*Journal of the American Medical Association*, May 9, 1931, p. 1626.

Pixsul.—In reply to an inquiry regarding the composition of "Pixsul," the Pixsul Corporation, Atlanta, Georgia, replied: "Pixsul is secret in composition." This should be sufficient to condemn it in the eyes of the medical profession. It is generally admitted and incorporated in the Code of Ethics that no physician shall use on his patients a preparation the composition of which is held in secret. The trade package of Pixsul bears recommendations typical of a "patent medicine" such as for eczema, ringworm, poison oak, toe itch, barbers' and parasitic itch—burns, bruises, and insect bites. The product appears to contain both sulphur and tar.—*Journal of the American Medical Association*, May 9, 1931, p. 1643.

Magnetic Belts.—The Council on Physical Therapy reports on the "Vitrona" and "Theronoid," stating that during the past four or five years there have been exploited to the public under various names solenoids for use in connection with the house electric-light circuit, for the alleged purpose of curing or alleviating human ailments by means of magnetism. The Council points out that the original device of this kind was the "I-on-a-co" and that two of the most widely advertised and extensively pushed imitations of the I-on-a-co are, respectively, the "Vitrona" of the Rodney Madison Laboratories, Inc., and the "Theronoid" of the Theronoid Corporation. The Council describes the construction of these outfits and discusses the claim that the apparatus will magnetize the iron in the blood and that such magnetization will bring about the cure of many diseases and conditions. The Council states that it has been known for a half-century or more that magnetism has no demonstrable effect on the human body and its processes. Because of many inquiries received, the Council carried out experiments with the Theronoid and Vitrona. Independently, A. J. Carlson carried out experiments and found that the Vitrona produced no effect on energy metabolism. Other experiments were carried out, all of which demonstrated that the Vitrona produced no effect on the human

(Continued on Page 43)



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TRUTH ABOUT MEDICINES

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organism within the influence of the coil. Similar experiments with the "Theronoid" showed that absolutely no absorption of power by a human subject surrounded by the Theronoid could be detected.—*Journal of the American Medical Association*, May 16, 1931, p. 1693.

Theronoid and Vitrona.—The old-time electric belts of our fathers' and grandfathers' days were crude affairs. They were to be worn next to the body and guaranteed to cure whatever ailed one. Quackery moves with the times. Human credulity is just as common a commodity as ever, but the methods of capitalizing it must, perforce, change with the times. The present-day successor to the old electric belt is the so-called magnetic belt. The first of these was put on the market by Gaylord Wilshire and called I-on-a-co. The I-on-a-co and its numerous imitations, are simple solenoids—coils of insulated wire that when plugged into the alternating current of the electric lighting system, produce a fluctuating magnetic field within the coil. While it has long been known by scientific men that magnetism has no effect on the physiologic processes of the body, and while it has also been known that magnetic permeability of the human body is that of air, the public does not know it—and that is all that is necessary from the standpoint of the quack. A number of imitations of the I-on-a-co have been exploited, among them being Theronoid, put out through one formerly associated with Wilshire, and Vitrona, by one Madison formerly employed by the Theronoid Corporation. In 1926 the Federal Trade Commission issued a complaint against the promoters of Vitrona, charging that the device has no curative or therapeutic value, action or effect. Later the Commission issued a Cease and Desist Order.—*Journal of the American Medical Association*, May 16, 1931, p. 1718.

Old Tuberculin in the Treatment of Tuberculosis. Koch reported tuberculin to the profession in 1890, and it was hailed as a specific remedy; unfortunately it was administered in a somewhat reckless way by inexperienced clinicians, and the disadvantages soon resulted in widespread condemnation. Tuberculin is not a selective curative remedy in the treatment of tuberculosis. It is not a specific. It should not be used by general practitioners in routine office practice, but by specialists in the sanatorium or home, where there is careful clinical supervision of the patients.—*Journal of the American Medical Association*, May 16, 1931, p. 1720.

Bismuth in the Treatment of Syphilis.—In the selection of a bismuth preparation the different factors come up as to whether one wants a soluble or an insoluble preparation, how often the dosage is going to be given, and how rapidly it is desired to have the preparation absorbed. The average effective bismuth preparation should contain from 0.03 to 0.2 gram of metallic bismuth in a dose and a course of Therapy lasting eight to ten weeks should probably amount to from 0.6 to 2 grams of metallic bismuth. The Council on Pharmacy and Chemistry has gone on record as opposed to intravenous bismuth therapy. The therapeutic dose is too close to the toxic dose; therefore one is limited to intramuscular injections. If one is desirous of a preparation with comparatively rapid absorption and one that probably should be given twice a week, one might employ the thioibismol in a dose of 0.2 gram (metallic bismuth, 0.075 gram per dose); or the potassium sodium bismuth tartrate, aqueous solution, usually with a dose of 0.1 gram (metallic bismuth, 0.04 gram per dose). These soluble preparations should be given twice a week and are hardly suitable for general office practice. When one administration per week is feasible only, one is forced back on the use of a soluble preparation suspended in oil, or an insoluble salt sus-

(Continued on Page 45)



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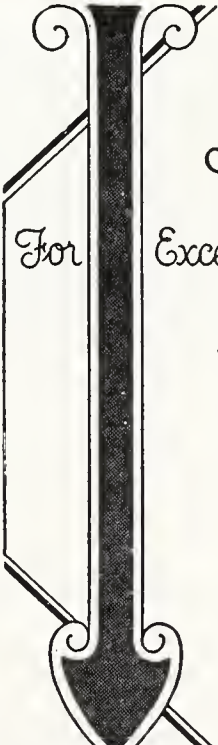
TRUTH ABOUT MEDICINES

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pendent in oil. Recently there has been a turn to the use of liposoluble bismuth preparations; there is a claim that these combine the good points of both the soluble and the insoluble salt, but it is too early to answer this question definitely.—*Journal of the American Association*, May 16, 1931, p. 1721.

The Censorship of Medical and Dental Advertising.—One of the primary reasons for the establishment of the Council on Pharmacy and Chemistry of the American Medical Association in 1905 was the desire of the editor of *The Journal of the American Medical Association* for scientific advice concerning claims made by advertisers for proprietary remedies. The board of trustees of the American Medical Association give the fullest support to the Council by refusing space in the advertising pages of publications of the American Medical Association to advertisers of proprietary remedies who failed to meet the Council’s requirements. With that support the Council has made its work and its name respected. The advertising pages of the publications of the American Medical Association and of the state medical journals that cooperate afford a striking contrast to the pages of the *British Medical Journal* and of the *Lancet* (London), which exercise a so-called censorship without, however, having behind the censorship the type of scientific study and control represented by the Council on Pharmacy and Chemistry. The Council on Dental Therapeutics of the American Dental Association began its work with high ideals and with enthusiasm. In 1930 the trustees of the American Dental Association adopted a resolution to place the association squarely behind the Dental Council in its efforts. Then, at the midwinter session of this association, held in February 1931, the board of trus-

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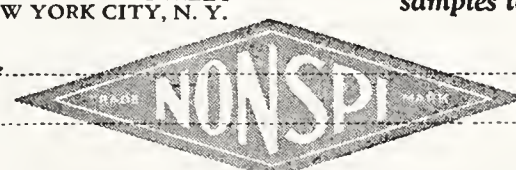
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tees practically reversed its previous action, placing the business manager of the periodical in a position of judgment over the council and making him arbiter as to whether or not the criticisms of the council shall be referred to the manufacturer. Without the power of the trustees of the American Dental Association and the periodical of the association wholeheartedly behind its work, the Council on Dental Therapeutics will be ineffective.—*Journal of the American Medical Association*, May 16, 1931, p. 1697.

Effects of Female Sex Hormone on Conception.—Experiments on guinea-pigs, made with a view of determining the effects of injections of the female sex hormone on conception and on pregnancy, showed that the female sex hormone is the active

agent in producing estrus. In previous studies it had been found that injections of the serum from pregnant women would delay the onset of estrus in guinea-pigs. These observations would seem to indicate an antithetic action between the female sex hormone and the corpus luteum hormone. Other experiments have indicated that the injection of the female sex hormone into pregnant white rats would terminate the pregnancy if it had not exceeded five days. Other investigators also, using white mice, were able to prevent conception and to interrupt pregnancy at any stage with comparatively small doses of the sex hormone. With guinea-pigs small doses of the female sex hormone prevented conception and with larger doses it was possible to interrupt pregnancy and in some cases caused the death of the mother.—*Journal of the American Medical Association*, May 16, 1931, p. 1698.

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5. Colfax is accessible. It is on the main line of the Ogden Route of the Southern Pacific R. R. and has excellent train service. It can be reached by paved highway, being on the Victory Highway, with paved roads all the way to Colfax.

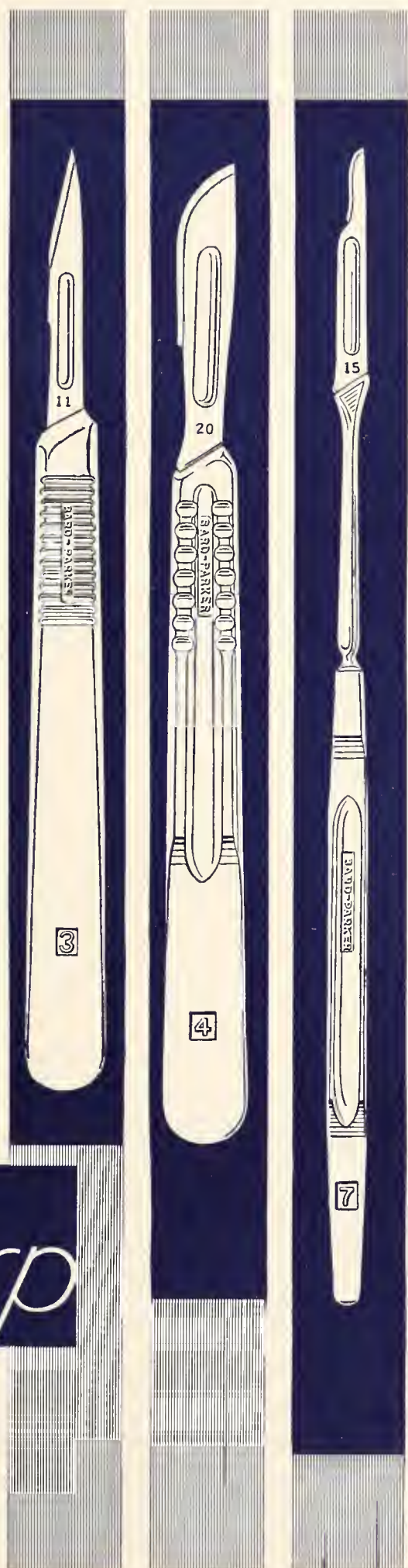
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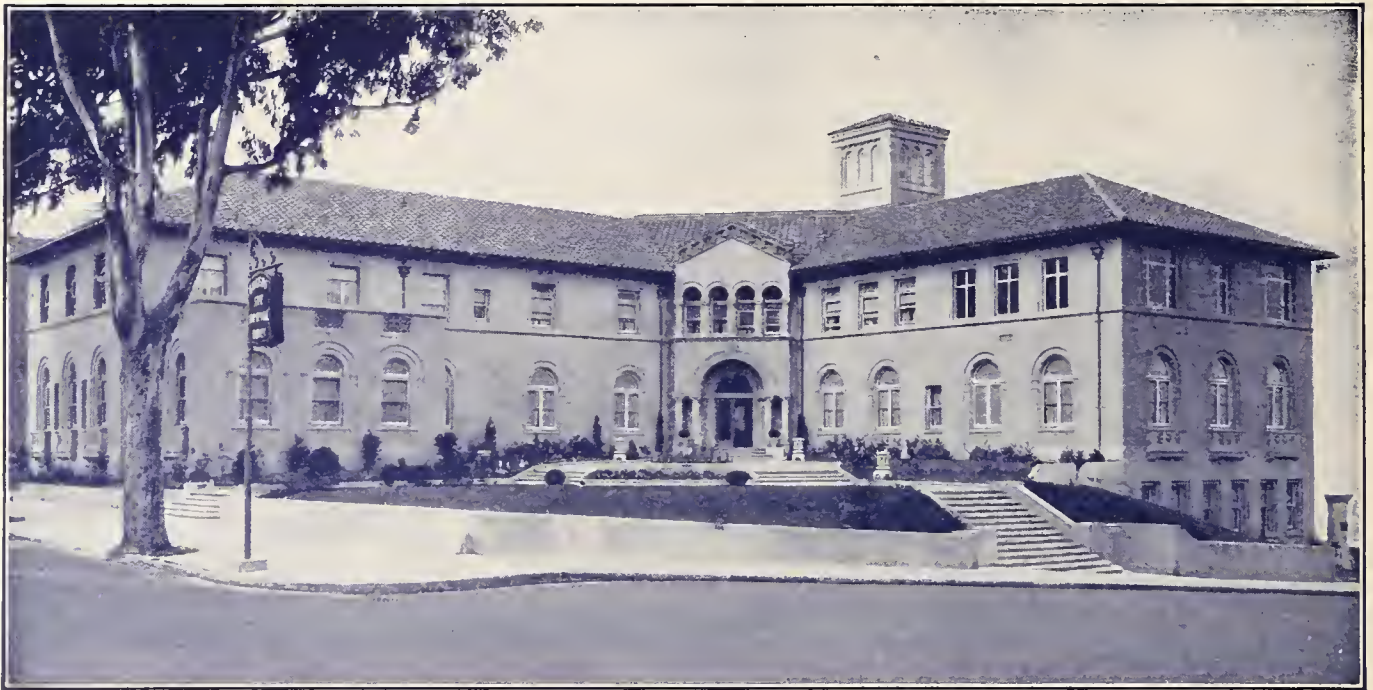
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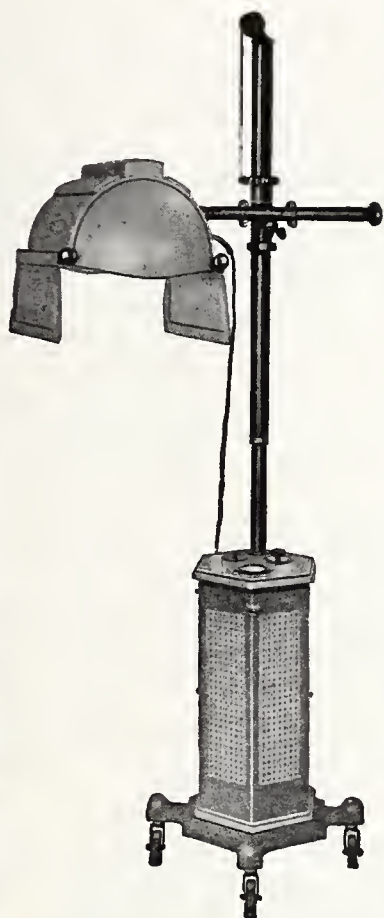
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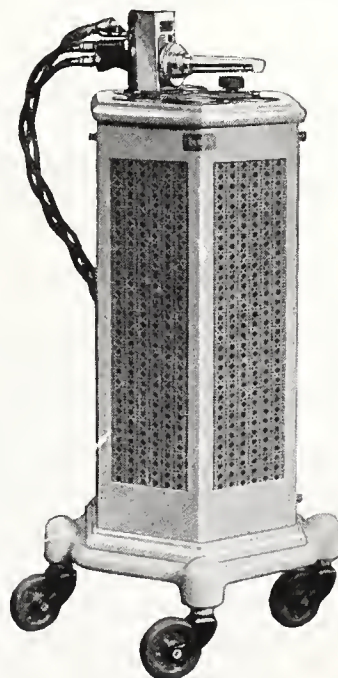
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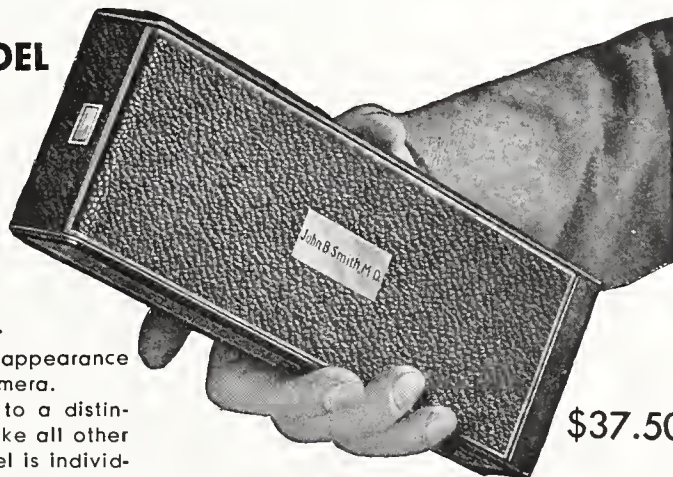
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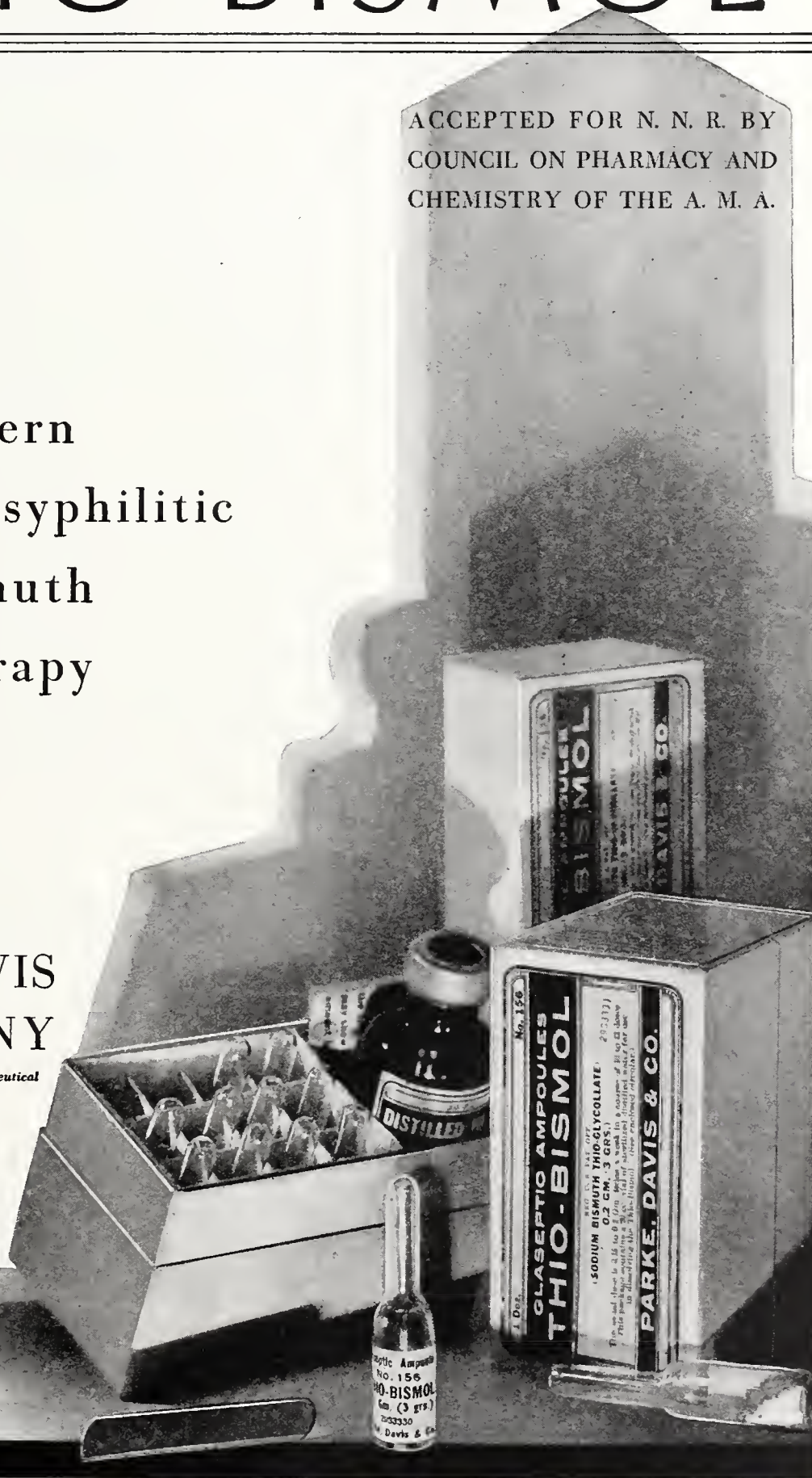
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"Vaccination against smallpox is compulsory for all citizens, in compliance with the provincial and municipal by-laws. Unfortunately, too many individuals omit this obligation."—*Canadian Medical Association Journal*, September 1930.

BOOK REVIEWS

List of Books Received

BOOKS RECEIVED

An Introduction to Gynecology. By C. Jeff Miller, M. D., Professor of Gynecology, Tulane University School of Medicine; Chief of the Department of Gynecology of Touro Infirmary; Senior Visiting Surgeon, Charity Hospital, New Orleans. Cloth. Pp. 327, illustrated. Price, \$5.00. St. Louis: The C. V. Mosby Company, 1931.

Clinical Dietetics. A Textbook for Physicians, Students and Dietitians. By Harry Gauss, M. S., M. D., F. A. C. P., Instructor in Medicine, University of Colorado, School of Medicine, assisted by E. V. Gauss, B. A., formerly Assistant Dietitian, Presbyterian Hospital, Denver, Colorado. Cloth. Pp. 489, illustrated. Price, \$8.00. St. Louis: The C. V. Mosby Company, 1931.

The Doctor and His Investments. Financial Policy and Technique for the Physician. By Marryle Stanley Ruckeyser, B. Lit., M. A., Financial Editor, Medical Economics and Dental Survey; Financial and Editorial Writer, New York American and Associated Newspapers; Associate in Journalism, Columbia University. Cloth. Pp. 330. Price, \$2.50 net. Philadelphia: P. Blakiston's Son & Co., Inc., 1931.

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1930. Volume XXII. Edited by Mrs. Maud H. Mellish-Wilson, Richard M. Hewitt, B. A., M. A., M. D., and Mildred A. Felker, B. S. Cloth. Pp. 1125 with 234 illustrations. Price, \$13 net. Philadelphia and London: W. B. Saunders Company, 1931.

A Clinical Study of Addison's Disease. By Leonard G. Rowntree, M. D., and Albert M. Snell, M. D. Division of Medicine, the Mayo Clinic and the Mayo Foundation, Rochester, Minnesota. Cloth. Pp. 317 with 41 illustrations. Price, \$4.00 net. Philadelphia and London: W. B. Saunders Company, 1931.

Protoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritis. By Louis A. Buie, B. A., M. D., F. A. C. S., Section on Proctology, the Mayo Clinic, Rochester, Minnesota, and Associate Professor of Surgery, the Mayo Foundation, University of Minnesota, Minneapolis, Minnesota. Cloth. Pp. 178 with 72 illustrations. Price, \$3.50 net. Philadelphia and London: W. B. Saunders Company, 1931.

A Textbook of Medical Diseases for Nurses. (Including Nursing Care.) By Arthur A. Stevens, A. M., M. D., Professor of Applied Therapeutics in the University of Pennsylvania; Visiting Physician to Philadelphia General Hospital and the Hospital of the University of Pennsylvania; Consulting Physician to St. Agnes' Hospital, Philadelphia, and Miss Florence Anna Ambler, B. S., R. N., Supervisor of Educational Department, School of Nursing, Philadelphia General Hospital. Cloth. Pp. 503, illustrated. Price, \$2.75 net. Philadelphia and London: W. B. Saunders Company, 1931.

United States Naval Medical Bulletin. Vol. XXIX, No. 3. Published Quarterly for the Information of the Medical Department of the Navy. Issued by the Bureau of Medicine and Surgery, Navy Department, Division of Planning and Publications, Captain W. Chambers, Medical Corps, U. S. Navy, in Charge. Edited by Lieutenant Commander Robert P. Parsons, Medical Corps, U. S. Navy. Paper. Pp. 579, illustrated. Price, 25 cents. Washington: United States Government Printing Office, 1931.

Method and Problems of Medical Education. Nineteenth Series. Edited by Franklin C. McLean, Ph. D., M. D., Professor of Medicine and Director of University Clinics, and Nellie Gorgas, Ph. D., Secretary to the Director of University Clinics. Paper. Pp. 214, illustrated. The Rockefeller Foundation, New York, 1931.

BOOK REVIEWS

Clinical Features of Heart Disease; An Interpretation of the Mechanics of Diagnosis for Practitioners. By Leroy Crummer. 2nd ed. Pp. 415. New York: P. B. Hoeber, Inc., 1930.

It has given me a great deal of pleasure to read the chapters by Dr. Crummer on the clinical features of heart disease. His discussions are couched in simple and beautiful language and his deductions from long years of active practice are so sound that one can scarcely put this book down after he has started it. The

(Continued on Page 14)

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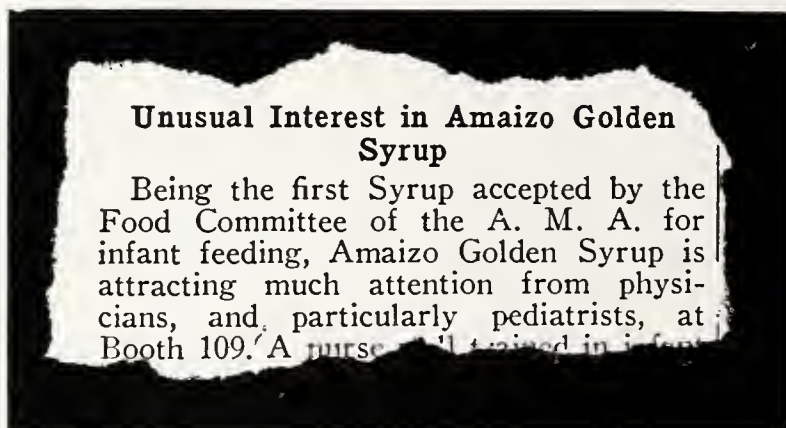
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BOOK REVIEWS

(Continued from Page 11)

chapter on cardiac irregularities is of particular interest because of the simplicity with which they are described and the ease with which they may be recognized by ordinary methods. The discussion on the treatment of heart disease is highly commended. Dr. Crummer has animated his chapters by introducing them with quotations from the older medical literature. This book should be in the library of practically every physician.

W. J. K.

Affections of the Eye in General Practice. By R. Lindsay Rea. Philadelphia: Lea and Febiger, 1930.

As the author states in his preface, this book is written to help the general practitioner in properly treating the eye diseases that he sees in his practice. It is not intended for students or specialists. In keeping with this idea, the author has omitted discussions of etiology

and of theories of interest chiefly to the specialist, and devotes the book to advice on how to treat the various diseases. In this way he has been able to include many minor details of the technic of treatments which are always left out of pretentious textbooks, but which are very helpful to one who has not had the opportunity to see many cases in an eye clinic.

While the reviewer feels that the author's outline of treatment for iritis and for gonorrheal ophthalmia is a little inadequate (no mention is made of non-specific protein therapy in either disease), the book on the whole should prove a great help to the general practitioner. If the title were "The Treatment of Affections of the Eye by the General Practitioner," it would indicate its sphere of usefulness more correctly.

D. K. P.

Introduction to Medical Biometry and Statistics. By Raymond Pearl. 2nd ed. Pp. 459. Illustrated. Philadelphia and London: W. B. Saunders Company, 1930.

Professor Pearl has brought great fame to the Johns Hopkins Medical School through his contributions to the field of statistics. He has taught us how faulty many of our own statistical studies may be and has suggested ways by which we may prevent such errors. Scarcely any one who deals in statistics can be without this valuable book, although it is not essential for one in general practice. Professor Pearl has the happy faculty of expressing himself clearly and well. This book contains many references to the important literature on the subject and summarizes the best of teaching in biometry and statistics.

W. J. K.

Legal Medicine and Toxicology. By Ralph W. Webster. Pp. 862. Illustrated. Philadelphia and London: W. B. Saunders Company. 1930. Price, \$8.50.

This volume is rather an extensive treatise covering what we might term the legal phases of medicine. It is an endeavor to acquaint the general practitioner with some of the highlights of medico-legal practice in a compact presentation. An attempt has been made to give the practitioners an introduction to the information which the medical expert in the past has ingested and assimilated over a long period of contact and intensive study, thereby isolating himself from the general practitioner in his particular realm of knowledge.

The book touches quite briefly upon the relation of doctor to patient and the doctor to the state, involving the matter of his confidential obligations to the patient as opposed or correlated to his obligations to the state.

Considerable space is given to the matter of determination of death in its ultimate detail with special reference being given to the evidence necessary to prove the various etiological factors involved therein.

The matters of paternity, blood relationships, et cetera, are given considerable space, as well as the grave problems of abortion and rape in their medico-legal aspect. The medico-legal sphere indicated above occupies about one-third of the book while the remaining two-thirds is devoted to toxicology.

In each instance the physical properties of the poisonous agent is gone into in detail as well as the symptoms produced by it, the effects of various doses, the manifestation of the dosages in industry where applicable, the post mortem signs, the general procedure in its detection, and finally, the proper line of treatment.

I may state that the author has availed himself of the

(Continued on Page 17)

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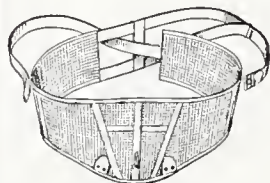


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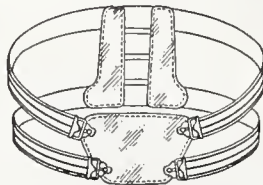
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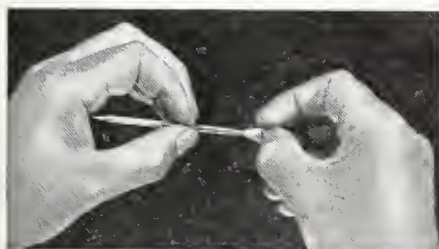
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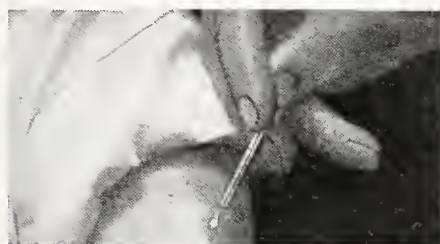
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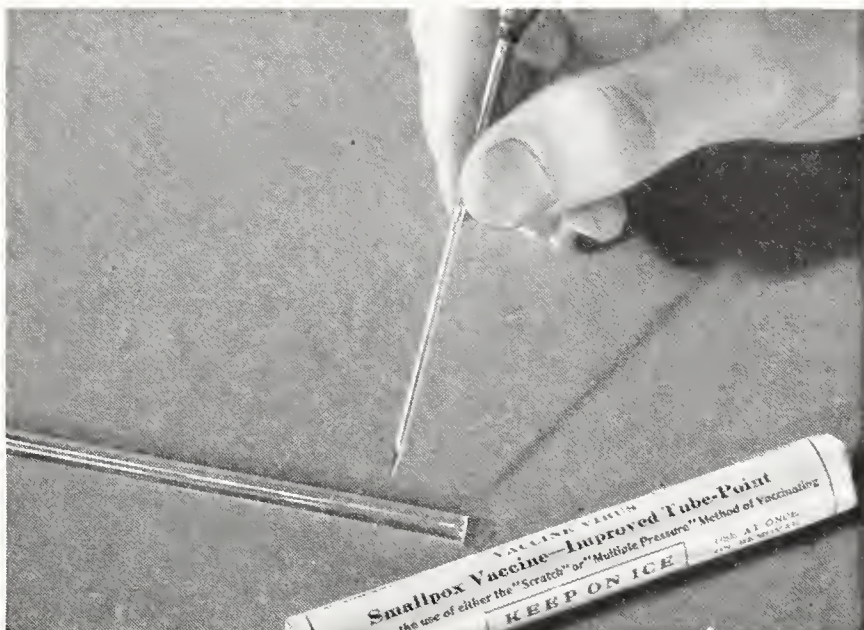
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BOOK REVIEWS

(Continued from Page 14)

great part of the outstanding literature upon the subjects under discussion and the volume is replete with reference to the outstanding related written thought.

As a reference work it is to be recommended highly, in that added to the original work of the author is a great mass of references to other contributors to the literature on the subject under discussion.

L. I. N.

New and Nonofficial Remedies, 1931, containing descriptions of the articles standing accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1931. Cloth. Price, postpaid, \$1.50. Pp. 481 + LVI. Chicago: American Medical Association, 1931.

This volume is the annual publication of the Council on Pharmacy and Chemistry of the American Medical Association, giving the latest authentic information concerning those of the newer medicinal preparations found worthy of the consideration and use of the medical profession. Each year the Council scans the general articles under which the various preparations are classified and revises these to conform to the latest and best medical thought.

A glance at the preface shows that a number of preparations have been omitted because they conflict with the rules that govern acceptance, because their distributors did not present evidence to demonstrate their continued acceptability, or simply because the manufacturers have taken them off the market. Important revisions have been made in a number of the general articles and in the descriptions of various preparations. Among the new preparations that have been found by the Council during the past year to be eligible for admission to the book are: Amytal and Pulvules Sodium Amytal, 3 grains, barbituric acid derivatives for use preliminary to surgical anesthesia; Thio-Bismol, quinine bismuth iodide, sodium potassium bismuthyl tartrate, and Tartro-Quiniobine, bismuth compounds for use in the treatment of syphilis; Scillaren and Scillaren-B, preparations containing the squill glucosides; two new cod liver oil concentrates;

Synephrine, a new vasoconstrictor, and synthetic thyroxine.

New and Nonofficial Remedies should be in the hands of all who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

Annual Reprint of the Reports of the Council of Pharmacy and Chemistry of the American Medical Association for 1930. Cloth. Price, \$1.00. Pp. 91. Chicago: American Medical Association, 1931.

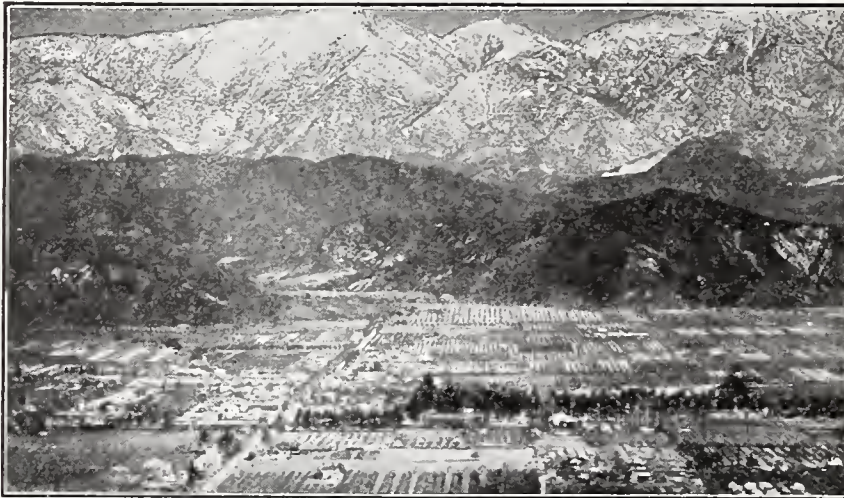
This book is essentially a record of the negative actions of that distinguished body, the Council on Pharmacy and Chemistry of the American Medical Association; that is, it sets forth the findings concerning medicinal preparations which the Council has voted to be unacceptable for recognition and use by the medical profession. Many of the reports record outright rejection or the rescinding of previous acceptances, others report in a preliminary way on products which appear to have promise but are not yet sufficiently tested or controlled to be ready for general use by the profession.

Among the reports recording outright rejection are those on: Avesan (H), formerly Nuforal, a mixture stated to be composed of formic acid, sodium nucleinate, camphor, allyl sulphide and chlorophyll, with traces of salicin and sulphuric ether, marketed with unwarranted claims of usefulness in the treatment of tuberculosis, asthma, and other respiratory diseases; Ceanothyn, once before rejected and still found to be marketed with unsupported therapeutic claims; Collosol Calcium and Collosol Kaolin, so-called colloidal preparations, the former an unscientific mixture of unproved value, the latter a possibly dangerous preparation, and both marketed with unwarranted claims; Ephedrol with Ethylmorphine Hydrochloride, an unscientific ephedrine preparation marketed under an unacceptable proprietary name with unwarranted therapeutic claims; Farastan, an unscientific iodine-cinchophen preparation proposed for routine use in "arthritis . . . and Rheumatoid conditions"; Haley's M-O Magnesia-Oil, a magnesia magma and liquid petrolatum mixture in fixed proportions marketed with emphasis on the "M-O"; Lydin, a testicular extract, marketed with claims of value in the treatment of impotence; and Metatone, a shot-gun "tonic" mixture marketed under a proprietary name with unwarranted therapeutic claims.

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(Abstracts from reports of Council on Pharmacy and Chemistry of the American Medical Association)

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Syrup No. 112 Ephedrin Hydrochlorid.—It contains ephedrin hydrochlorid (Lilly) (New and Nonofficial Remedies, 1931, p. 175) 0.22 grams, in 100 cubic centimeters (1 grain per fluidounce) and alcohol, 12 per cent. Eli Lilly & Co., Indianapolis, Ind.

Quiniobin.—Quinin bismuth iodid rendered soluble in olive oil by means of lecithin. Each cubic centimeter contains 0.03 gram of bismuth, 0.03 gram of quinin, 0.075 gram of iodine, and 0.22 gram of lecithin. Quiniobin is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (New and Nonofficial Remedies, 1931, p. 94). It is claimed that, since in Quiniobin the quinin bismuth iodid is soluble, the injections are usually only slightly painful and the dosage is more accurate than with suspensions of quinin bismuth iodid. It is supplied also in the form of 2 cubic centimeter ampules. Spicer & Co., Glendale, Calif.—*Journal of the American Medical Association*, June 6, 1931, p. 1053.

(Continued on Page 26)



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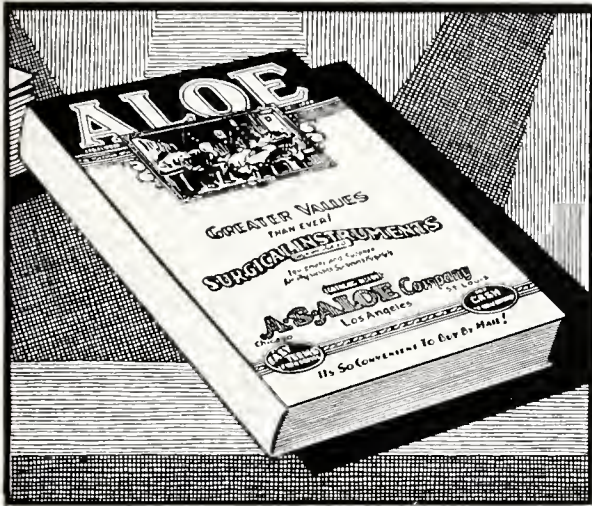
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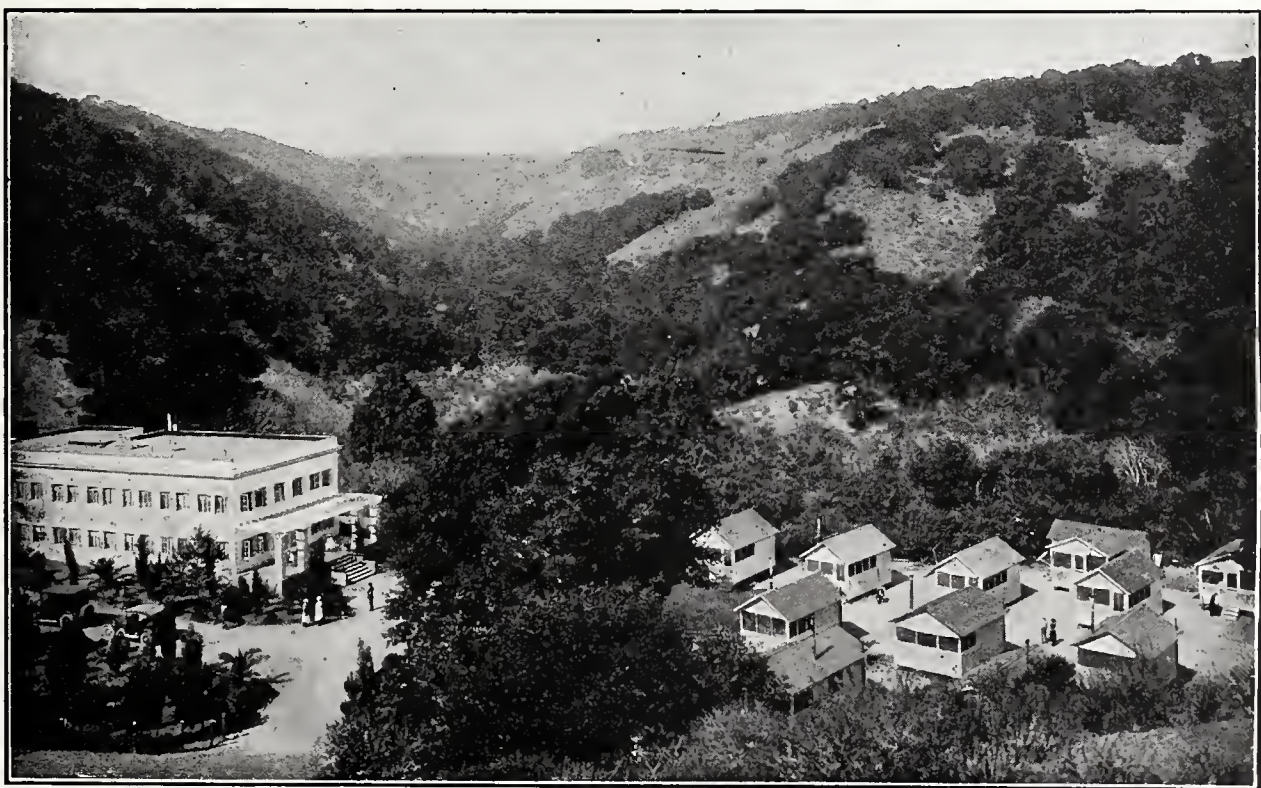
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Firch's Ma Made Bread (Sliced and Unsliced) (Firch Baking Company, Inc., Erie, Pa.).—A white bread (sliced and unsliced) made by the sponge dough method.—*Journal of the American Medical Association*, June 6, 1931, p. 1953.

Torex (Concentrated Beef Bouillon) (International Products Corporation, New York City).—A semi-fluid mixture of beef extract, salt, vegetable extract, starch and powdered white pepper and onion; packed in block-tin tubes. It is claimed that this product dissolves instantly in hot water, that it permits the quick preparation of a warm drink for the home and camp table and that it is adapted for seasoning gravies, stews, etc.

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as is ordinary milk.—*Journal of the American Medical Association*, June 13, 1931, p. 2037.

Merrell-Soule Powdered Protein Milk (Merrell-Soule Company, Inc., New York City).—A powdered food made from milk; higher in protein and lactic acid and lower in lactose than dry whole milk. It is claimed that when restored to liquid form with water it closely approximates Finkelstein's protein milk formula. It is said to be indicated in cases of dyspepsia, alimentary intoxication, marasmus and celiac diseases.

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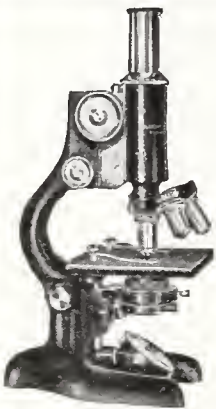
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be a bread of good quality.—*Journal of the American Medical Association*, June 27, 1931, p. 2197.

PROPAGANDA FOR REFORM

More Medical Frauds.—The following are some of the minor swindles that have been debarred from the mails: Flowering Herb Company. This was the trade name used by one Walter L. Klinger, who did business from 5529 Dakin Street, Chicago. He sold some herbs under the claim that they would cure diabetes. The United States mails have been closed to the Flowering Herb Company, and its officers and agents. Amol Company. The Amol Company of New York was a trade name used by one Maurice Lundin in the sale of what he called "Amol Pep Tablets." Under various trade names Lundin has been swindling the public for years through the United States mails by one scheme or another, largely of the sexual impotence variety, and a number of fraud orders have been issued against these fraudulent schemes. Now a fraud order has been issued against the Amol Company because of the sale of Amol Pep Tablets. Until the postal authorities put Lundin in the penitentiary he will presumably continue to swindle the public. Fong Wan Herb Company. This was a trade name employed by Fong Wan, who sold through the United States mails so-called Chinese herbs that were alleged to cure various diseases and ailments. The mails have been closed to the Fong Wan Herb Company. Texan Products Company. This was a trade name used by Mrs. B. M. Cabanes of San Antonio, Texas, who was selling through the mails two products—Gonococorina, which was claimed to be a cure for gonorrhea, and Anti-Pyorrhea, sold as a cure for diseases of the mouth, bleeding, inflamed gums, "bad breath," etc. A fraud order having been pre-

(Continued on Page 34)



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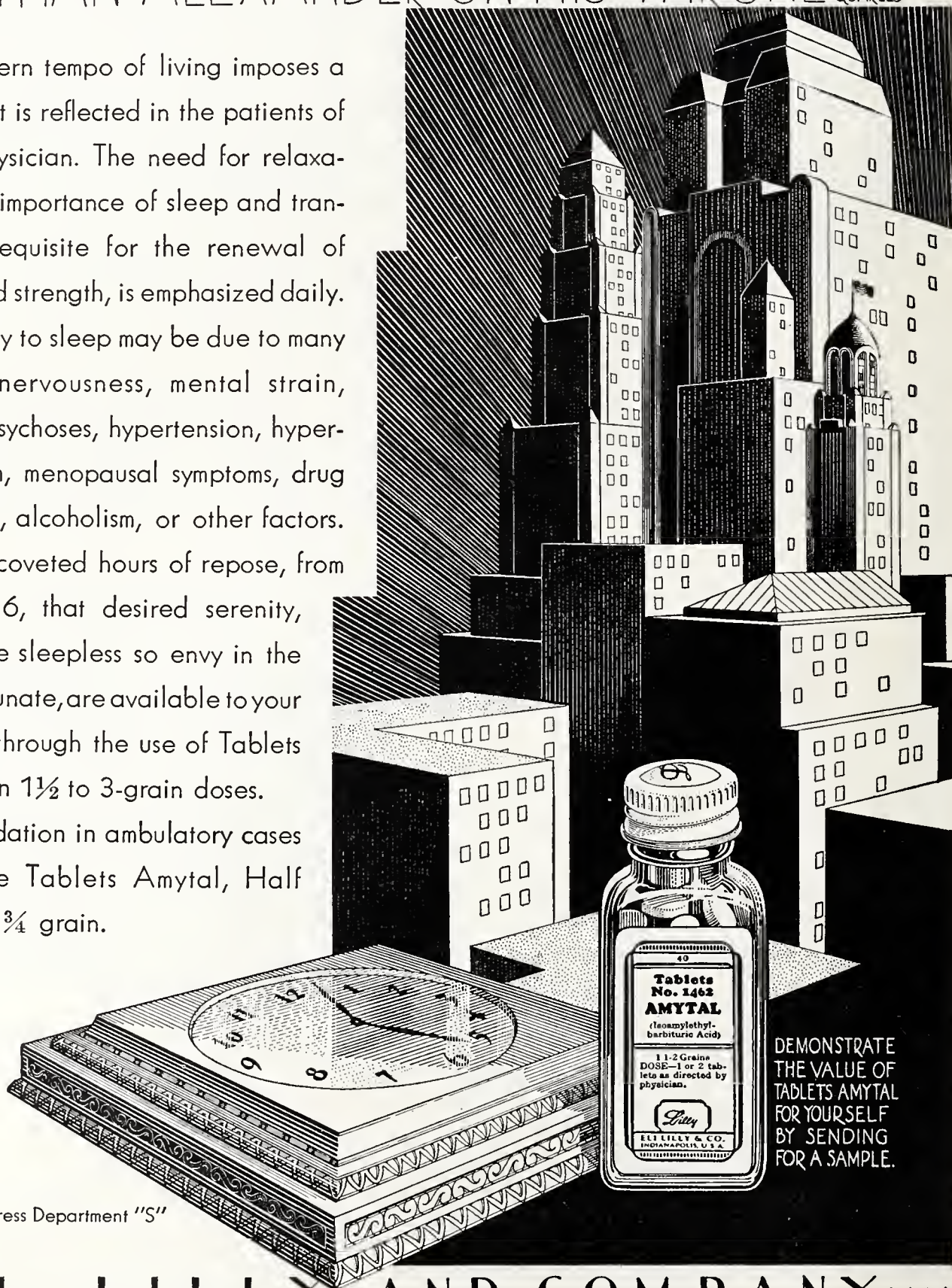
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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXV

AUGUST, 1931

No. 2

HYDROSALPINX—ITS VISUALIZATION BY HYSTEROSALPINGOGRAPHY*

By ALBERT MATHIEU, M. D.
Portland, Oregon

SINCE 1926 considerable experience in hysterosalpingography has been gained by men in many parts of the world. Some comment has been made declaring the procedure dangerous, strangely enough, by those not familiar with it, while those who have had extensive experience in the matter all agree not only as to its innocuousness, but also that it has given us another excellent method for increasing our diagnostic acumen. The literature is sparse on the subject of untoward effects following the injection of the uterus and tubes with iodized oil for the purpose of visualizing the cavities of these organs with the roentgen ray. It is obvious that the men who have had much experience with hysterosalpingography know its limitations and contraindications and they must of necessity be on their guard to avoid any dangers that might result from this manipulation. It is also obvious that strict aseptic and antiseptic precautions should attend the injection; 200 millimeters of mercury should be the upper limit of the pressure used and the injection should not be made in the face of acute active infection of the parts involved. Otherwise the actual maneuver requires about the same intelligence as would the sounding of the uterine cavity. By using these precautions the method becomes safe, sane and valuable, and there should be no need for any hullabaloo concerning its dangers. The men who have pioneered in this work should be given due credit for their efforts. The value of hysterosalpingography is well known and is as welcome as that of visualizing the bronchial tree or the urinary tract, and, mind you, the method is as safe and as firmly established as an aid to gynecologic study as the above diagnostic methods are in their particular fields.

HYSTEROSALPINGOGRAPHY—AN AID TO GYNECOLOGIC DIAGNOSIS

What has hysterosalpingography done as an aid to gynecologic diagnosis? It has done all that could be expected of it; it has markedly increased the number of correct gynecologic diagnoses; it has furnished much new academic knowledge on this subject; it has markedly increased the interest in finished and complete diagnosis; and, above

all, it has established pathognomonic signs in one gynecologic condition about which little has been known and in which a correct diagnosis is not often made. This condition is a type of hydrosalpinx which is rather common, not often diagnosed clinically and not often suspected.

TYPES OF HYDROSALPINGES

Froriep in 1834 classified hydrosalpinges into two groups—the one, hydrops tubae fallopiae occlusae, in which both ends of the tube were closed, and the other, hydrops tubae fallopiae apertae, in which the distal end of the tube was closed and the cornual end open and permeable. It is concerning this last type that this paper is being written. This group comprises about 80 per cent of all small hydrosalpinges, is usually bilateral, and is much more common than one has believed.

There is another type of hydrosalpinx, hydrops tubae profluens, a condition described in medical prints as a hydrosalpinx with the uterine end of the tube open and permeable and the sac full of serous fluid which accumulates rather rapidly at times and empties into the uterus when the tube becomes full. This was considered a rare condition and only a few cases were described. The main complaint of the patient was that she lost a great quantity of clear serous fluid from the vagina more or less periodically. Curtis says that hydrops tubae profluens is a clinical entity, but I am skeptical concerning this condition. I am not satisfied that the cases quoted in the literature were proven and I have my doubts that the fluid in a hydrosalpinx accumulates in the manner supposed by these authors. I believe that all large hydrosalpinges occur in tubes that are closed at both ends, the closure at the cornual end being an actual occlusion or a closure caused by kinking or twisting of the tube. I cannot see how the fluid in a hydrosalpinx sac can increase, once the acuteness of the infection has subsided. There may be some actual increase of the fluid due to the secretion from the glands in the mucosa lining the tube, but the amount of this secretion must be almost negligible. The only condition which I can conceive simulating hydrops tubae profluens would be that in which the fimbriated end of an otherwise healthy fallopian tube was adherent to a large ovarian cyst which would rupture into that area within the circumference of the fimbriated end of the adhered fallopian tube. In such a case, one could see how there might be an occasional evacuation of a large amount of clear fluid through the tube and uterus into the vagina. While presumably this condition would be extremely rare, it could exist. At any

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.
Bibliography will be given in the reprints.



Fig. 1A.—Hysterosalpingogram of normal uterus and tubes. Normal dilatation of the ampullar portion of the tubes with evidence of spilling of the iodized oil at the fimbriated ends.

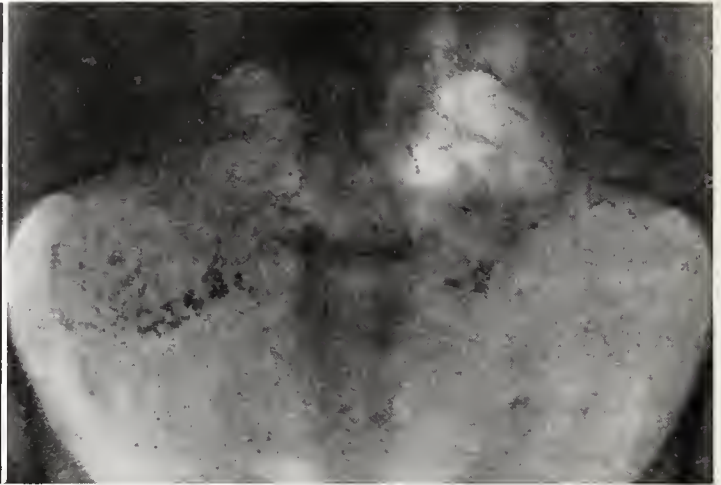


Fig. 1B.—Twenty-four-hour film after the injection of iodized oil into normal uterus and tubes. The oil is scattered in the pelvis.

rate, the use of iodized oil and the roentgen ray would surely clear up the diagnosis in all supposed cases of hydrosalpinx profluens.

ETIOLOGY OF HYDROSALPINX

The etiology of hydrosalpinx is that of salpingitis and perisalpingitis, and beyond doubt the vast majority of cases are due to single mild gonorrheal infections. Many believe hydrosalpinx to be a progression of pyosalpinx. Since the pathologic findings in small simple hydrosalpinx, large hydrosalpinx and pyosalpinx are so different, just so must there be a difference in the severity of the infection, its conduct with regard to the tissues involved and in the patient's reaction to this infection. Why does one patient have a small simple hydrosalpinx with the uterine end of the tube open and permeable while another has a huge hydrosalpinx with both ends of the tube closed? Curtis, who has had an enormous clinical experience combined with laboratory study of gonorrheal tubes, says that a single introduction of infection usually eventuated in relatively mild pathologic changes. Severely diseased tubes rarely result from a single exposure, even though the invading organism is virulent.

Excepting the difference in the type of pathologic lesions formed by the gonococcus, the tubercle bacillus and the pyogenic streptococcus, I believe that the difference in the pathologic end condition is the difference in the severity of the infection. Consider the gonococcus infection. I believe that all of the small hydrosalpinges of which I am speaking are due to mild infections with attenuated gonococci and that the larger

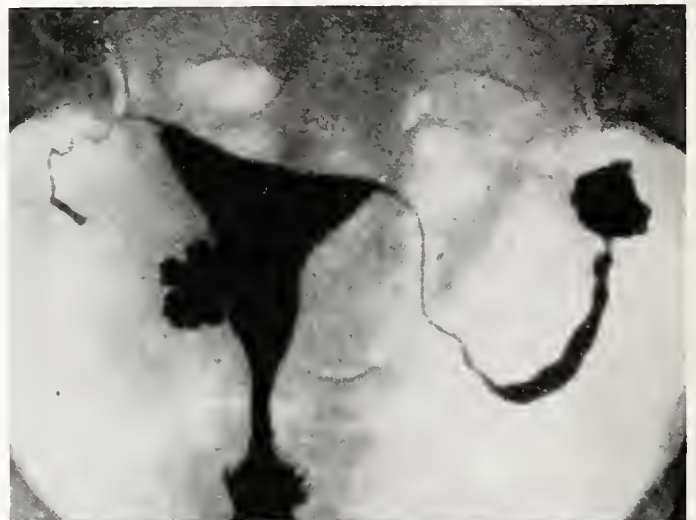
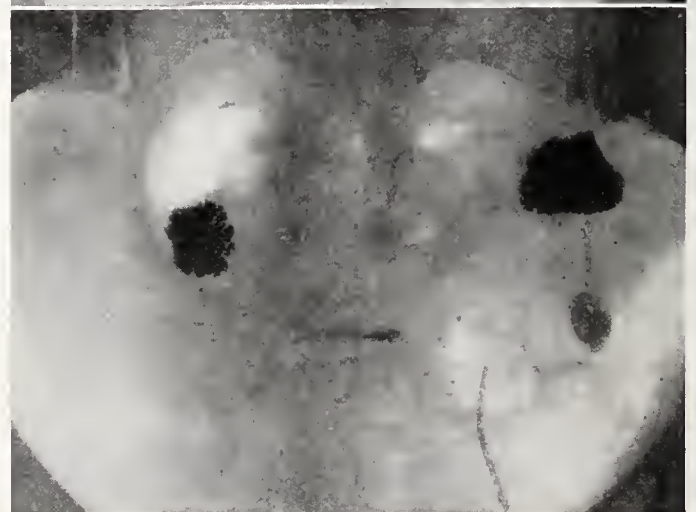


Fig. 2A.—Hysterosalpingogram of bilateral hydrosalpinges. Note the iodized oil contained in sacs at the ends of the tubes. Rosette formation in the distal end of right tube outlining the tucked-in fimbria of the tube. Note the beading in the left tube due to muscular peristalsis.

Fig. 2B.—Film of Figure 2A, taken ten minutes after the removal of the canula. Note that most of the oil in the uterus and tubes is already evacuated, that a portion of the oil in the left tube seems to be gravitating downward and that the oil is remaining in the hydrosalpingeal sacs.

Fig. 2C.—Twenty-four-hour film of 2A. Two sacs of iodized oil hanging in the pelvis. A pathognomonic sign of hydrosalpinx.



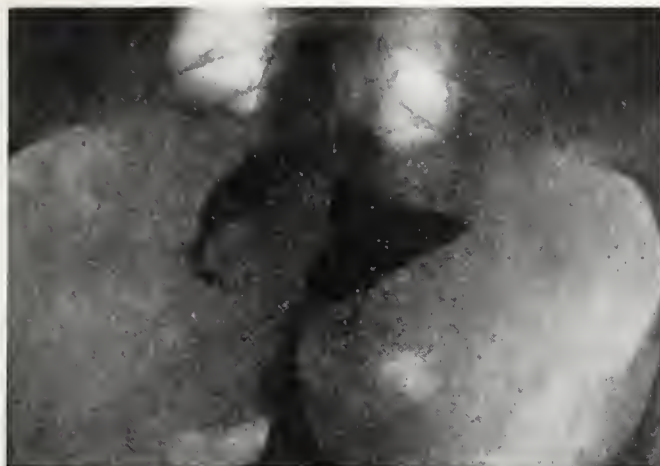


Fig. 3A.—In this case the left tube had been removed for ectopic pregnancy. Note the wide dilatation of the ampullar end of the right tube and the lack of evidence of spilling through the distal end.

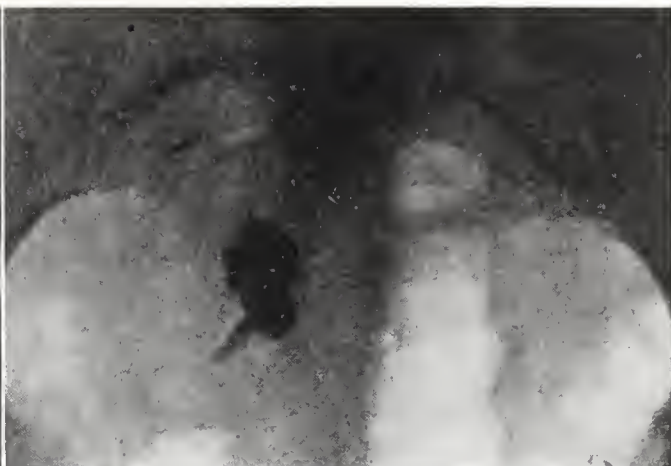


Fig. 3B.—Twenty-four-hour film of 3A, showing sac of iodized oil.

hydrosalpinges, the pyosalpinges, and the tubo-ovarian abscesses are due to a more virulent type of the same germ, or to repeated infections as suggested by Curtis.

A COMPOSITE HISTORY—FROM SEVENTEEN CASE RECORDS

A composite history of the seventeen patients whose disease I am discussing is as follows: The complaints are sterility, dysmenorrhea or dysparunia, and there is often no history of a gonorrheal infection. They usually complain of mild but continuous pelvic distress; indeed many come to the gynecologist only because of their sterility. On examination, smears are negative for gonococci and there is no evidence of an acute infection, but there is usually found a slight thickening and hardening of one or both Bartholin glands, evidence of Skene gland infection, a cervicitis and tenderness in the pelvis on bimanual examination. Occasionally one feels what seems to be a small cystic ovary or a loop of gut, but usually the pelvic examination is unsatisfactory and no large masses or signs of pelvic disease are found. In some cases I have examined these patients under general anesthesia with the

same findings. I mean to suggest that at times the hydrosalpingeal sacs are so soft that they are not recognized. The condition of the Bartholin or Skene glands or the slight tenderness causes one to renew the investigation into the history and this time, with more direct questioning, one can elicit the following history: Shortly after the first intercourse there was noticed painful and frequent micturition, followed by dysparunia, dysmenorrhea, slight but continuous pelvic pain and a vaginal discharge.

This picture is often found in young women, married and sterile. From this history it would appear that the young husband infected his wife with an attenuated gonococcus, having thought himself cured of the disease and having married prematurely. The ensuing infection is a rather mild affair, causing little distress to the woman and almost passing her notice. In this type of case the infection is sufficiently severe to cause an active endosalpingitis and perisalpingitis wherein there is a swelling of the outer layers of the tube and some involvement of the mucosa. The inflammation and swelling of the tube cause a tightening of the peritoneal ring around the distal end of the tube, the fimbria are pulled into the

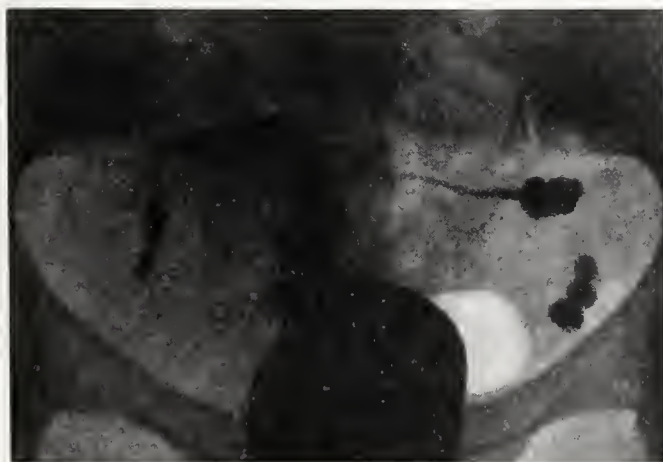


Fig. 4A.—Film shows uterus deviated to the right and retroverted. The right tube fills to its distal end normally and there is evidence of spilling. The left tube shows a marked dilatation at its distal end with droplet sign (coarse emulsion). The oil appears to be emulsified in the fluid of a hydrosalpinx. A twenty-four-hour film (Figure 4B) is necessary to complete the diagnosis.

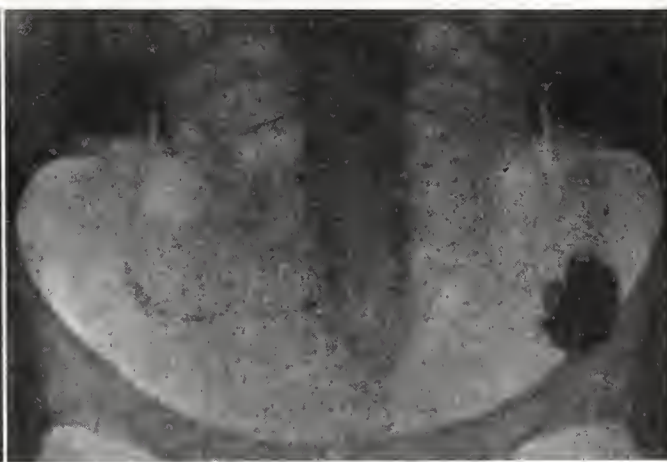


Fig. 4B.—Twenty-four-hour film of 4A. Note the iodized oil disseminated in the right side of the pelvis, having leaked out of the end of the right tube. Note, also, the bag of iodized oil hanging in the left pelvis. Diagnosis: Patent right tube, small hydrosalpinx of left tube.

tube by the swelling and sealed in this position and the end of the tube becomes closed. A transudate or an exudate forms and fills the tube with serous fluid. Soon the infection subsides, leaving the tube closed at its distal end, but still patent at its proximal end with the outer third of the tube distended, thin-walled and filled with fluid. A simple hydrosalpinx, averaging four centi-

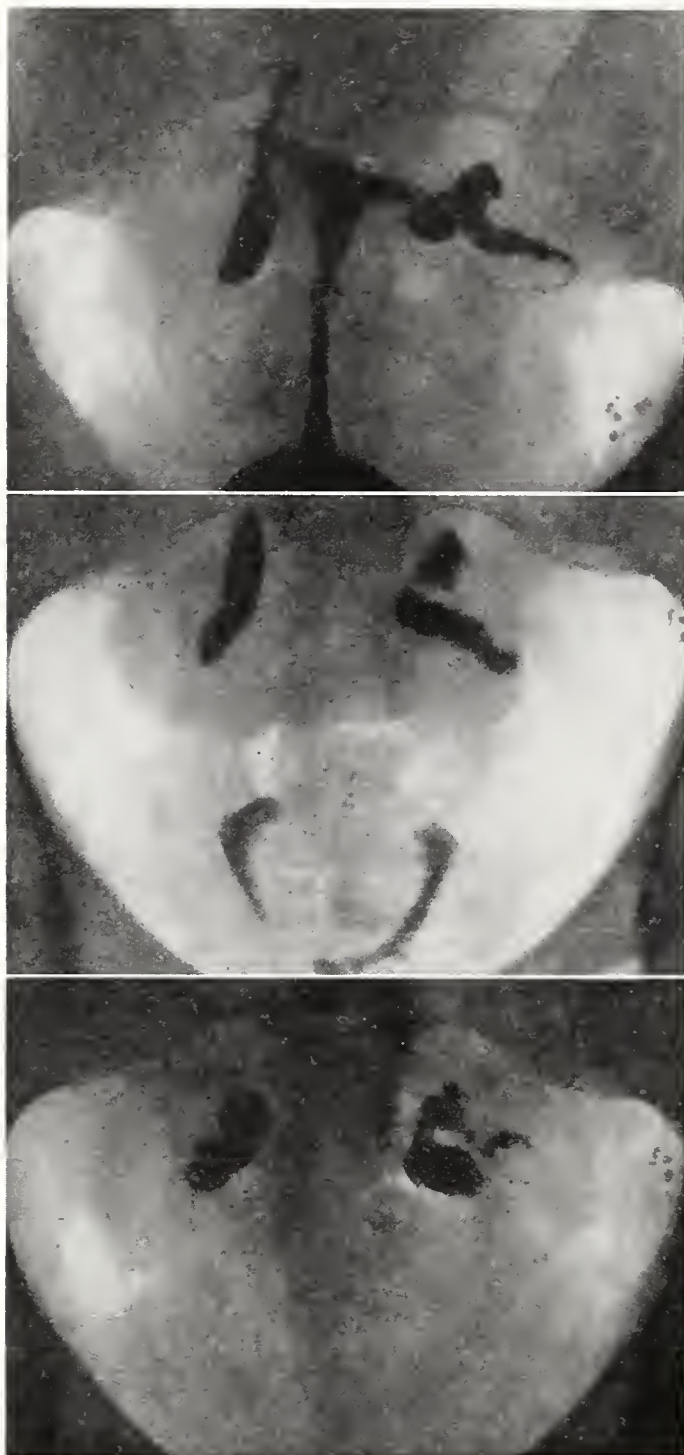


Fig. 5A.—Note marked dilatation of the ampullar portions of both tubes. The iodized oil seems to be retained in the end of each tube. This is strong presumptive evidence of bilateral hydrosalpinx.

Fig. 5B.—Hysterosalpingogram of 5A five minutes after the canula had been removed. Note that there is iodized oil visible in the lower part of the pelvis, probably in the vagina. Note also the two bags of oil hanging in the pelvis—the uterus and the proximal portions of the tubes being free from iodized oil.

Fig. 5C.—Film of 5A, taken one week after the injection of the iodized oil. Note the sacs of iodized oil. Diagnosis: Bilateral hydrosalpinx. The small shadows in the left part of the pelvis, seen in every roentgenogram of the patient, are probably due to phleboliths.



Fig. 6.—This roentgenogram shows well the droplet sign produced by the mixture of oil and fluid in the tube. The twenty-four-hour film showed the oil to be retained in sacs, proof of bilateral hydrosalpinges.

meters in length and two centimeters in breadth, remains, attached to and hanging down behind the broad ligament. The adhesions about this sac are not firm or tough and the sac can usually be peeled from the posterior surface of the broad ligament without rupture. This process seems to involve only the distal third of the tube in mild cases. On the other hand, were this infection virulent or were there reinfections, a more severe pathologic condition would be seen and there would be found a large closed hydrosalpinx, a pyosalpinx, a tubo-ovarian abscess or a pelvic abscess.

PATHOLOGIC FINDINGS

The pathologic findings are usually as follows: The distal end of the tube is closed, the fimbria being tucked inside and sealed in this position. The distal third of the tube is dilated and converted into a thin-walled sac containing a serous fluid. The thinning of the wall of the sac is usually in direct proportion to the amount of dilatation. The mucosa is not especially involved



Fig. 7.—Note six drops of iodized oil low in the pelvis. This is the droplet sign, an emulsion of oil and other fluid. In this case, this sign was caused by the oil dropping into free fluid in the culdesac, for the twenty-four-hour film showed the oil scattered freely in the pelvis and not contained in a sac. This proves that the droplet sign, though suggestive of hydrosalpinx is not pathognomonic of that condition.



Fig. 8A.—Proximal third of one tube. No changes. Number two and three are from the same tube, and are of same magnification.

except by pressure, and the morphologic characteristics of the tubal epithelium are practically unchanged. The chief pathologic findings are a marked atrophy of the muscular coat, an increase in the elastic fibers and markedly dilated capillaries. Sections of the tube taken proximal to the sac show fairly normal musculature (Figures 8A, 8B, 8C).

HYSTEROSALPINGOGRAPHY

The signs of this disease obtained by hysterosalpingography are pathognomonic. The hysterosalpingogram of the normal tube (Figure 1A) shows filling to the distal end, shows the normal amount of dilatation in its distal third and shows evidence of spilling of the iodized oil through its fimbriated extremity. The control film (Figure 1B), taken twenty-four hours later, shows the uterus and tubes absolutely empty of iodized oil while shadows of the oil are seen scattered throughout the pelvis. Experience with hysterosalpingography has taught us that the proximal two-thirds of the tube empties itself by peristaltic muscular waves into the uterine cavity, while iodized oil in the fimbriated region of the tube, probably because of gravity and because of the dilatation of this portion of the tube, drops into the pelvic cavity. This evacuation of the tube usually takes place within thirty minutes or less after the injection of iodized oil into the normal tube, and has been proven many times by series of roentgenograms taken after the canula was

removed. The twenty-four-hour roentgenogram, showing the iodized oil scattered about in the pelvis, is absolute evidence of the patency of at least one tube (Figure 1B).

In the case of hydrosalpinx with the cornual end of the tube open and permeable, the findings are quite different but absolutely characteristic. In the film taken at the time of the injection (Figures 2A, 3A, 4A, 5A), the tube shows a marked dilatation of its distal third from three or four times normal, there is no evidence of spilling and the oil seems to be contained in a well-outlined sac in the end of the tube. The proximal two-thirds of the tube appears to be normal. The twenty-four-hour film (Figures 2C, 3B, 4B, 5C) shows the uterus and the proximal two-thirds of the tube empty and clear of iodized oil. The shadow of the distal end of the tube is the same as it was the day before, and if another film is taken a week or two later the same bag or shadow, unchanged, will be seen. This shadow of the iodized oil in this definite unchanging form is a pathognomonic sign of hydrosalpinx. Since the condition is usually bilateral, one sees in the twenty-four-hour film the shadows of two bags of iodized oil hanging down, one in each side of the pelvis (Figure 2C). The emptying of the tube in a case of hydrosalpinx is different from the emptying of a normal tube. The iodized oil in that portion of the tube which still possesses a good muscular layer is evacuated into the uterus by peristaltic muscular waves (Figures 2A, 2B, 2C), while that portion of the iodized oil which is in the sac remains there because the muscula-



Fig. 8B.—Middle third of hydrosalpinx wall. Slight atrophy of muscular bundle with blunting of mucosal folds.



Fig. 8C.—Distal end of hydrosalpinx wall. Shows marked thinning and atrophy of the muscle and obliteration of mucosal folds.

ture in this portion of the tubes is so thinned out that it cannot function (Figure 2C). We know that the emptying of the healthy portion of the tube into the uterus is not due to any siphon mechanism because we have watched this portion of the tube empty itself long after the canula has been removed (Figures 2A, 2B, 2C).

There is still another sign which is characteristic of hydrosalpinx as visualized with iodized oil and the roentgen ray. Often when the oil enters the tube and drops into the sacculated portion containing the serous fluid, it mixes with this fluid as a rather coarse emulsion and the shadow on the film shows many droplets of the iodized oil in the fluid in the sac (Figures 4A and 6). There is one possible source of error in reading this sign. When there is free fluid in the pelvis or in the culdesac and the oil spills through the distal end of the tube and falls into this fluid, this droplet sign may be seen. This happens rarely, but when it does happen the droplets are seen low down in the pelvis near the mid-line and they do not appear to be contained in a sac (Figure 7). The twenty-four-hour film will show this oil disseminated throughout the pelvis, whereas if this emulsion is in the tubal end and contained therein it will still be there on the twenty-four-hour plate, not as an emulsion and not showing the droplet sign, but rather as a bag of oil.

CONCLUSIONS

There exists a type of small hydrosalpinx, usually bilateral, the signs of which are difficult to elicit either by history taking or bimanual examination. This condition is not rare in the sterile young married woman and when visualized by hysterosalpingography shows definite pathognomonic signs.

545 Medical Arts Building.

INCIDENTAL HEAD SURGERY—ITS EFFECTS ON THE COURSE OF PULMONARY TUBERCULOSIS*

CLINICAL PRIZE PAPER OF THE SIXTIETH ANNUAL SESSION OF THE CALIFORNIA MEDICAL ASSOCIATION†

By ELEANOR C. SEYMOUR, M. D.
Los Angeles

TO operate or not to operate—that is the question! The advisability of surgical intervention in the course of pulmonary tuberculosis has long been a subject for controversy.

In the case of emergency surgery, such as acute appendicitis intervening in the course of chronic pulmonary tuberculosis, there is little argument that the patient is entitled to the greatly lessened mortality that follows early operation. In elective conditions, where there is a chronic focus of infection or some localized source of discomfort, the question arises as to whether the benefits accruing from the removal of the offending tissues may not be counterbalanced by the aggravation of the tuberculous process in the lungs.

However, modern sanatorium treatment has so improved the prognosis in this disease that there seems to be an increasing advocacy of a conservative resort to surgery in these patients.

COMMENTS ON THE LITERATURE

A perusal of the literature discloses many advocates of head surgery in infection of the tonsils and upper air passages. John C. Boone,¹ after a questionnaire sent out to a large number of chest specialists, concludes: "Opinion is coming more and more to a consideration of tonsillectomy as a therapeutic measure," and adds as a result of his analysis, "There is insufficient evidence of ill effects following removal to offset the positive gains reported." Among the surgical advocates are Pollock, who makes the startling statement: "I am in favor of removing tonsils in every case of tuberculosis and see no reason why it should not be done as it removes one focus of infection." Hyde advises removal of tonsils, if possible, before admission to the sanatorium. Freeman Adams says, "I have always removed infected tonsils in pulmonary tuberculosis, either active or quiescent, and results have justified me sufficiently to continue its practice." However, the majority advocate removal of tonsils in quiescent cases only. Many of those favoring as well as those opposed, qualified their statements by saying, "Each case must be considered individually." This should be the rule, however, in every case of proposed surgery.

Quoting from Brooks^{3 11}: "Imperative surgery must be resorted to and it is surprising how well

* This paper was submitted under the nom de plume "Ambrose Paré" and was awarded the California Medical Association Clinical Prize of \$150 at the sixtieth annual session of the California Medical Association at San Francisco, April 27-30, 1931.

† Note.—The name of the institution at which this study was carried on was not mentioned in the manuscript. The name has been inserted by the editor.

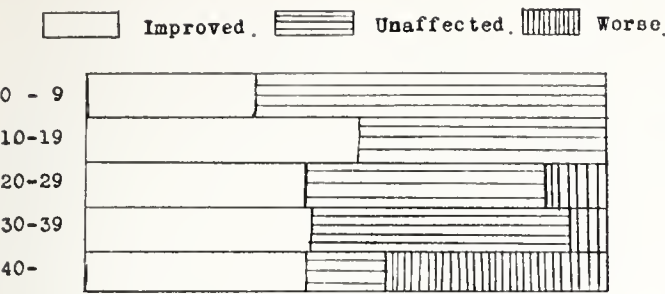


Chart 1.—Age and change since operation.

far-advanced cases come through even major surgery. Conditions not imperative are often benefited by surgery and the patient is thereby assisted in his battle for health and his recovery hastened. Obstacles such as surgical pathologies should be removed and a majority of all surgical conditions may be relieved if proper methods are followed."

Abbott,² in a comparative study of the results of three hundred general operations upon the tuberculous as against an equal number of patients not operated upon and in the same classification, found that those operated upon made the more satisfactory progress. As a result of his findings he has reversed his former opinion

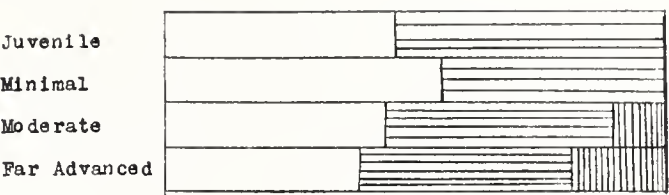


Chart 2.—Stage and change since operation.

of pulmonary tuberculosis might well give a more objective basis for the evaluation of the various factors concerned in this problem.

The study is based upon the records of incidental operations on tonsils, sinuses, and mastoid, in one hundred consecutive cases among the three thousand patients cared for at the Olive View Sanatorium of Los Angeles County during the years 1926 to 1930 inclusive. These included fifty-one patients below the age of twenty, and forty-nine others above this age. The operations performed consisted of seventy-eight tonsillectomies, thirteen sinus operations, eight submucous resections, and one mastoidectomy. The patients included twenty-eight children with the juvenile or childhood type of tuberculosis, or with merely a history of contact or undernutrition; twenty-seven instances of minimal or incipient stage

TABLE 1.—Age and Type of Operation

Age Years	Tonsillectomy	Sinus Operation	Turbinate Resection	Mastoid Operation	Total
0-9	21	0	0	0	21
10-19	27	2	1	0	30
20-29	16	4	5	1	26
30-39	12	2	2	0	16
40-	2	5	0	0	7
Total	78	13	8	1	100

against submitting tuberculous patients to operation. Eighty-five per cent of these cases were abdominal sections.

The conservatives agree that in contemplating surgery the stage of the disease must be considered; also the extent to which the operation may be indicated as judged by the subjective symptoms or apparent effect of the complication on the patient's condition. All agree that the availability of expert surgical and anesthetic service should weigh heavily.

WHY THIS STUDY WAS UNDERTAKEN

The present work was undertaken with the thought that a study of the actual results obtained by surgical intervention in elective cases of nose, throat, and ear pathology occurring in the course

tuberculosis; eleven patients with moderately advanced lesions; and thirty-four patients with far advanced pulmonary tuberculosis. The above operations, performed during the years 1926 and 1927, were done for the most part at the Los Angeles General Hospital, and those subsequent to that time were performed by a visiting or resident otolaryngologist at the Olive View Sanatorium. Only those patients were included in this study concerning whom there was adequate information available as to the condition at the time of admission to the sanatorium, and prior to the performance of the operation; and in which there were also data available as to the subsequent course, either as obtained by interviews with the patient's physicians, in the instances where the patient is still in the sanatorium; or from the

TABLE 2.—Stage and Condition on Discharge

Stage	Quiescent	Improved	Unimproved or Died	Still in Sanatorium	Total
Juvenile	14	7	0	7	28
Minimal	13	9	0	5	27
Moderately advanced	3	3	0	5	11
Far advanced	2	13	4	15	34
Total	32	32	4	32	100

TABLE 3.—Age and Change Since Operation

Age	Improved	Unaffected	Worse	Total
0-9	7	14	0	21
10-19	16	14	0	30
20-29	11	12	3	26
30-39	7	8	1	16
40-	3	1	3	7
Total.....	44	49	7	100

record of condition on discharge for those who were at the Olive View Sanatorium for some time after the operation; or from the follow-up records obtained during the past year by the record office of Olive View Sanatorium.

Records show that twenty-one of the operations were performed under general ether or ether and gas anesthesia, while forty-nine were performed under local anesthesia. The anesthetic used in the remaining cases was not recorded. The last fifty pairs of tonsils removed at Olive View Sanatorium were sectioned and stained for histological examination, and six of them, or 12 per cent, were found to contain typical tubercles,

ation in a patient who had, prior to the operation, shown good evidence of clearing of the tuberculous lesion would be considered incriminating evidence against such treatment. This evaluation of the patient's condition at present, as compared with what it might have been expected to be, had the preoperative course of the disease been maintained, is, of course, open to considerable question and requires much exercise of judgment on the part of the investigator; it appears, however, to be the method most likely to yield results of value in the final conclusions. The factors considered were seven in number: hemoglobin, sedimentation rate, sputum, weight, pulse, temperature, and x-ray findings.

Of the one hundred patients studied, careful perusal of the records indicates that forty-four were definitely improved as compared to their preoperative condition, forty-nine showed no appreciable change, and seven became definitely worse. One of the two patients in this series who died has been included in the group showing no appreciable change, since her demise was well foreshadowed by her condition irrespective of any operative intervention.

TABLE 4.—Type of Operation and Change Since Operation

	Improved	Unaffected	Worse	Total
Tonsillectomy	33	41	4	78
Sinus operation	8	2	3	13
Turbinate resection	3	5	0	8
Mastoid operation	0	1	0	1
Total	44	49	7	100

with giant cells, epithelioid cells, and areas of necrosis. No instance of malignancy of the tonsil was discovered. The patients included forty-three males and fifty-seven females; which harmonizes with the fact that there are somewhat more women than men in the institution.

EVALUATION OF RESULTS OF OPERATIONS

In evaluating the results of the operation on the condition of the patient, with especial reference to the changes in the tuberculous process in the lungs, it was necessary to take into consideration the course of the disease prior to the performance of the operation. Thus in the case of a patient who was rapidly going downhill, the performance of an operation that neither accelerated nor retarded the progression of the disease could not be held responsible for his poor condition six months later, while a physical decline at the end of six months from the time of oper-

As may be seen in Table 2, the condition at the time of discharge or at present varied with the stage of the disease, twenty-seven out of the fifty-five juvenile or minimal patients being discharged as arrested and sixteen as improved, as compared with only fifteen of the thirty-four far advanced patients who were considered arrested or improved at this time. This prognosis compares well with the results in the five thousand admissions to the sanatorium since it was first opened.

The change in the patients' conditions, as shown by the evaluation of the final records available in each instance, is shown in Table 3. Here we see that the operative intervention was followed by a setback in none of the minimal, or juvenile patients, and in only one of the moderately advanced cases, but that seven of the far advanced patients showed definite retrogression in the course of the succeeding months. More

TABLE 5.—Stage and Change Since Operation

State	Improved	Unimproved	Worse	Total
Juvenile	13	15	0	28
Minimal	15	12	0	27
Moderately advanced	5	5	1	11
Far advanced	11	17	6	34
Total	44	49	7	100

TABLE 6.—Anesthetic and Change Since Operation

Anesthetic	Improved	Unaffected	Worse	Total
Ether	10	11	0	21
Local	24	18	7	49
No record	10	20	0	30
Total	44	49	7	100

detailed investigation shows that of the patients operated, on whom such data is available, eighteen have since shown a more rapid sedimentation rate as measured by Linzenmeier's technique; twenty have shown some lowering in the percentage of hemoglobin as estimated with a Dare hemoglobinometer; five have shown more acid-fast organisms in the sputum; eighteen have lost in weight; twenty-nine have shown some increase in the average temperature; twenty-two have shown an acceleration in the average pulse rate; and six have shown spread and softening of the x-ray shadows or enlargement of cavity outlines in the x-ray. Examination of the records indicate that immediately after the operation there was a rise in average temperature and an aggra-

lar tuberculosis. While Case 926, rated as far advanced "B," seems to have suffered some untoward effects, he was discharged as far advanced "A" improved. On the other hand, several of these patients, even though the tuberculous condition has shown progression since the operation, have been so relieved of the other symptoms from which they were suffering prior to the surgery that they are well pleased with the results, despite their poor pulmonary plight. In the case of those whose lung conditions have improved, this is even more often encountered and the number of records in which there is definite statement of relief following the operation cannot be lightly disregarded in the final evaluation. It would seem that the younger the patient the

TABLE 7.—Changes in Three Months After Operation

	Improved	Unaffected	Worse	No Data	Total
Sedimentation rate	31	0	19	50	100
Hemoglobin	20	5	18	57	100
Sputum examination	6	51	7	36	100
Weight	62	9	11	18	100
Temperature	37	36	18	9	100
Pulse	49	12	30	9	100
X-ray	25	0	6	69	100

vation of many of the symptoms and signs in many cases, but the tables show that by the end of three months from the date of the operation the condition had already returned to the pre-operative state in most instances.

The seven patients in whom the operation was followed by a turn for the worse are worthy of further consideration. In every instance there may be found some complicating or supervening factor often not present at the time of the operation, which may be held responsible for the unfortunate termination, and thus absolve the operative process from responsibility for the outcome. Thus in Case 3621 an acute purulent otitis media, developing months after the operation, may be credited with the higher pulse and temperature which have since existed. Case 3695 had pelvic and gall-bladder complications. Case 4498 had, in addition to his sinusitis, far advanced testicu-

earlier or more limited the tuberculous lesion, and the better the patient appears to respond to the ordinary sanatorium régime the better also the results to be expected from surgery for complicating conditions.

The use of ether as an anesthetic seems well supported by these results, since in every case the untoward course of the disease followed a local anesthetic. This may, perhaps, be partially explained by the usual reluctance to use a general anesthetic in the sicker patients, but the work of Cowper indicates that ether does not, in itself, exert the deleterious effect on the tuberculous lung that was formerly believed.

The type of operation did not appear to have much relationship to the later course of the disease, the age differences in the different groups probably accounting for what might otherwise appear as discrepancies.

TABLE 8.—Final Changes After Operation

	Improved	Unaffected	Worse	No Record	Total
Sedimentation rate	36	1	18	45	100
Hemoglobin	28	4	20	48	100
Sputum examination	6	61	5	28	100
Weight	64	6	18	12	100
Temperature	41	24	29	6	100
Pulse	61	11	22	6	100
X-ray	49	2	7	42	100

COMMENT

The prejudices of the past arose largely from inadequate evaluation of the surgical risk and resultant disasters. Any patient is a surgical risk; the one afflicted with a chronic disease such as tuberculosis is substandard and should be evaluated most painstakingly and surrounded by every safeguard before, during and after the operation. Modern methods of diagnosis, refined and adept surgical technique and, above all, a trained anesthetist render all surgical procedures less problematical. There must be unremitting attention to the infinite details which experience has demonstrated are such important factors in the treatment of tuberculosis at every stage. The avoidance of fear and consequent psychic shock weigh even more heavily here than in the case of the average. The subnormal patient requires days or weeks of preparation, and a long period of postoperative rest for recuperation. Speed in operating, avoidance of hemorrhage or undue trauma,¹⁰ maintenance of uniform body temperature, and a properly administered anesthetic are factors contributing to safety.

While local anesthesia^{4 5 9} is generally growing in favor among surgeons, should an inhalation anesthetic be decided upon, the choice of the anesthetist is of vastly greater importance than the kind of anesthetic to be used.⁶ The occasional anesthetist is just as dangerous as the occasional surgeon. Unhappy results following a general anesthetic usually imply incompetence in its administration. True ether pneumonia from the irritation of the lung by the anesthetic is comparatively rare, but postoperative pneumonia may readily occur, due primarily to aspiration of infectious material.^{7 8 13} To maintain the cough and swallowing reflex, nature's safeguards, is the ideal to be attained. A higher percentage of pulmonary complications follow local anesthesia than general anesthesia.¹² The use of atropin, preliminary to ether in tonsil surgery, operating with the patient in a lateral, slight Trendelenburg, or Rose position, are protective measures. Safety lies in good judgment, skill and teamwork—all available in the modern large sanatorium.

CONCLUSIONS

Although unnecessary surgery is never to be recommended, and the possible surgical risk in every operation, however slight, should never be minimized, results as revealed in a careful analysis of one hundred instances of operations on the upper air passages of patients with pulmonary tuberculosis give little support for a pessimistic attitude. When there is definite indication for a rational surgical procedure for the relief of pain or discomfort, or for the removal of an actual focus of infection, the presence of a pulmonary tuberculous lesion should not be considered an absolute contraindication.

Olive View Sanatorium of Los Angeles County.

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LEUKOPENIA—A REVIEW: WITH SPECIAL REFERENCE TO AGRANULOCYTIC ANGINA*

PART I

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INTRODUCTION.—This subject is not only timely but it seems to me it is appropriate for this hall and occasion in that it leads us into the same fields of pathology, clinical pathology and research in which he whose name these lectures bear performed such valuable service.

The white cells of the blood form one of the important defenses of the body; their usefulness is sure in certain fields and we have reason to suspect a still greater importance in other directions as yet unproven. Any failure of such an essential bulwark of the body is at once a serious matter demanding our attention. We are familiar with the tragic results when leukocytosis fails in septic infections and pneumonia, and within recent times an apparently new and often fatal syndrome, agranulocytic angina, seems to be becoming increasingly common. Also we are encountering more instances of intense leukopenia apparently resulting from the use of modern chemicals in therapy. Is it possible that the human race is threatened with a weakening of this form of body defense or with a failure of this defense against newly developed dangers? Is it conceivable that civilization by reducing the incidence of minor injuries and infections thus lessens the frequent demands which are necessary to maintain a defense at its highest efficiency,

* Stanley P. Black Memorial Lecture delivered at Pasadena, January 12, 1931.

Editor's Note.—The annual Stanley P. Black Memorial Lecture at Pasadena is given in memory of the late Stanley P. Black, a graduate of Northwestern, class of 1887, who came to California in 1897. Doctor Black was professor of pathology in the College of Medicine of the University of Southern California, was health officer of Pasadena for years, and at all times maintained an active interest in public health work. He had much to do with the Certified Milk Commission of Los Angeles. After his death on February 4, 1921, his friends united in getting up a memorial fund, which sponsors the annual Stanley P. Black Memorial Lecture.

and at the same time through the increasing exposure of all of us to chemicals, either in fumes, in medicines, or other contacts, brings about a further depression of the already weakening function of defense of the body through the white cells of the blood?

The Normal White Blood Cell Range.—In the normal adult the number of white blood cells ranges between 5000 and 10,000 per cubic millimeter; above 10,000 justifies the term "leukocytosis"; below 5000 the term "leukopenia."

Within the normal range the count swings up and down with little or no change in the percentage figures of the various types of white cells which together make up the total count. Greater increases or decreases in the total count are, as might be expected, usually chiefly due to increases or decreases in the number of cells of the most numerous form, the so-called polymorphonuclear neutrophil or neutrophilic granular leukocyte or, familiarly, 'polies.'

For our purposes tonight it is important for us to remember that this cell type arises wholly in the bone marrow where its immature forms, the myeloblast and myelocyte, normally remain, and that it forms from 60 to 70 per cent of the total white cells of the blood.

Leukocytosis.—Leukocytosis may be due to an increase of other cell types as, for example, the eosinophilic leukocytosis of trichiniasis; but severe leukopenia cannot occur unless the neutrophilic leukocytes are diminished. Often all the cell forms are coincidentally reduced in number. Perhaps the most marked leukopenia not due to a reduction in neutrophils is that due to a reduction in the number of lymphocytes by radiation.

Leukopenia.—It would seem that leukopenia might come about in three ways, either an increased destruction or a failure of production, or a migration of the cells from the peripheral blood from which our clinical counts are made.

No form of leukopenia has been proved to be due wholly to an increased destruction of leukocytes, although such may well occur, and this factor may play a part in many leukopenias.

Failure of production seems to be a frequent mechanism in bringing about leukopenia. Sometimes the reduction of white cells is but one manifestation of bone marrow failure, in others the white cells alone are affected, in still others the white cells and the platelets. Aplastic anemia is a good example of the first form; in its fully developed picture there is not only anemia, but also leukopenia and reduction in platelets. Red cells, platelets, and leukocytes of marrow origin are all reduced, and only the lymphocytes and monocytes retain their usual numbers.

Leukopenia from redistribution of white cells is the third variety. Usually it is a transitory phenomenon although it may be quantitatively very striking; usually it results from the entrance of a foreign protein substance into the blood.

It is the granular leukocytes, especially those with neutrophilic granules, which leave the peripheral blood and are found in large numbers in the internal organs, especially the liver and

spleen.¹ The reduction in count in the peripheral blood under these conditions may be very great as but few of the usually numerous representatives of the granular series of white cells may be left in the peripheral blood. The mechanism of the phenomenon has been much discussed; Bull,² who studied it following the injection of typhoid bacilli, believes that the white cells collect in the organs the better to engulf the circulating bacteria. Whatever the mechanism may be, the phenomenon is very rapid and constant. The count of white cells in the peripheral blood often falls within an hour after an intravenous injection of killed bacteria or other foreign protein to a quarter, or even less, of its former level. Subsequently, a leukocytosis appears which may exceed 20,000 per cubic millimeter within twenty-four hours. This leukocytosis is largely formed of young cell forms,³ but there is no sure evidence that the cells which leave the peripheral circulation during the period of leukopenia do not return.

Miller and I attempted to solve the problem by studying the excretion of nitrogen in rabbits injected with dead typhoid organisms. The total nitrogen, urea nitrogen, and allantoin nitrogen, which is in rabbits the end product of nucleic acid breakdown, equivalent to uric acid in humans, were determined. With dead organisms we obtained no change in excretion, even when very great changes in the white cell counts occurred.

ETIOLOGY OF LEUKOPENIA

These theories of how leukopenia is brought about are the only ones we have to turn to in trying to explain the various forms of leukopenia which we encounter.

1. *Infectious Leukopenia.*—A few infections as, for example, typhoid fever, do not show leukocytosis; a very few dengue, kala azar, and smallpox up to the fourth day give an actual leukopenia. We have no criteria to tell us which infection will have leukocytosis; which, leukopenia. We might reason that a foreign protein enters the blood in malaria and that in low-grade chronic infection an almost symbiotic relationship between the infecting agent and the host exists, but these arguments help us little, with other diseases.

In sharp contrast to the failure of a low-grade infection to excite leukocytosis is the leukopenia resulting from an overwhelming infection of a type which in less severe form would cause marked leukocytosis. This phenomenon is usually encountered in cases with heavy infection by streptococci, pneumococci, or staphylococci.

This form of leukopenia has long been recognized; it was in earlier days described as the "lymphocytosis of sepsis" on account of the relative lymphocytosis which the differential count reveals when the granular neutrophils are markedly reduced. There is no increase in the actual numbers of lymphocytes, but a high percentile rise. To emphasize this relative lymphocytosis, as was formerly done, is unfortunate, for the important change is the fall in the cells of the granular series.

We do not know for a certainty whether this type of leukopenia is due to depression of marrow function or whether the granular cells leave the peripheral blood to congregate in the internal organs, or even if these cells are destroyed. It is commonly assumed by writers that it is the failure of the marrow to maintain the production of cells which accounts for the leukopenia, and such evidence as there is does favor this view, but it is not settled. In favor of the redistribution hypothesis is the fact that such leukopenia usually only occurs when a heavy blood stream infection is present.

It is important to realize that a degree of infection which would excite leukocytosis in one individual would be overwhelming to an asthenic debilitated or elderly person. It is also important not to apply this explanation of leukopenia too readily in all instances, as for example, in agranulocytic angina. The assumption that this syndrome is the result of such an overwhelming infection is, to my mind, wholly untenable in the face of many facts and observations, notwithstanding the wide support prematurely given to this assumption.

2. *Leukopenia in Diseases of the Hemopoietic System.*—Aplastic anemia has been mentioned as the clearest example of leukopenia due to bone marrow failure. The same is true in pernicious anemia, osteosclerotic anemia, and aleukemic leukemia at times. The leukopenia of some stages of Banti's disease is not easily explained.

3. *Toxic Leukopenia.*—A variety of chemicals cause leukopenia, of which benzol and arsenic are the best known; benzol because of its therapeutic use in lowering the white cell count in leukemia, arsenic because of its widespread employment in many processes and treatments, especially in the form of arsphenamin in syphilis.

Benzol seems to act by depressing bone marrow function and so do the x-ray and radium. The anemia, and sometimes thrombopenia, which may appear coincidentally with the leukopenia, seem to support this view.

Arsphenamin leukopenia is more interesting, and deserves special emphasis in view of the temptation to use this medicament intravenously in agranulocytic angina because of the discovery of Vincent's organisms in the ulcers of the mouth and throat.

D. L. Farley,⁴ of our university staff, has recently collected a series of thirty-nine cases of leukopenia following arsphenamin therapy; twenty-three of these died. He concludes that no one type of arsphenamin is more apt to produce leukopenia than another and he believes that the direct cause is disintegration in vivo of the arsphenamin so that a benzol-like action takes place. The infrequency of the occurrence suggests that there must exist a preceding weakness of the hemopoietic apparatus in the individuals affected.

The most important point that Farley makes is that one should be alert to recognize early symptoms of bone marrow weakness in patients who are to receive arsphenamin treatment. This

suggestion is interesting in view of the free use which some have made of arsphenamin in the treatment of agranulocytic angina.

4. *Allergic Leukopenia.*—I have quoted some of the experimental results in the production of leukopenia by intravenous injection of foreign protein. Much the same results occur in non-specific protein therapy. The promptness, magnitude and duration of the blood count changes differ with the protein employed.

We are not sure whether or not a similar leukopenia may not occur from the spontaneous entrance of foreign protein either in health or disease. Widal's so-called hemoclastic test of liver function is based on the assumption that a diseased liver permits insufficiently broken-down food protein to enter the circulation. The resultant leukopenia is interpreted as evidence of this disturbed hepatic function. This is unproved, but it is theoretically possible that leukopenia may occur in the absence of actual injection of a foreign protein and without the striking phenomena of protein shock. I emphasize this for further mention in discussing theories which might explain agranulocytic angina.

IDIOPATHIC LEUKOPENIA—AGRANULOCYTIC ANGINA

5. *Idiopathic Leukopenia.*—Having mentioned the commoner forms of explainable leukopenia, let us turn at once to that unexplained form which is commonly termed *agranulocytic angina*. Perhaps this term, given by Friedemann, is not the best name for the syndrome described by Schultz⁵ in 1922, but it is certainly that most commonly in use in this country.

Of course, Schultz was not the first to see instances of this syndrome; since his description of it, many older case reports have been found which agree more or less accurately with it. The importance of Schultz' contribution resides in the fact that he realized that the cases which he reported differed from the usual instances of angina on the one hand, and from the recognized cases of leukopenia on the other. Whether or not he was right in believing that the condition was a clinical entity matters little; what does matter is that he distinguished these cases from those in which leukopenia results from intense sepsis or other causes.

It is quite unfair to Schultz to make out that Türk⁶ in 1907 described this syndrome. The cases of severe sepsis with low white cell counts which he described perhaps included one or more instances which would today be classed in this syndrome group, but Türk did not distinguish them from the commoner leukopenia of overwhelming infection. However, the *Journal of the American Medical Association*,⁷ in a recent leading editorial, certainly gives the other impression and so do a number of writers of current articles.

Once attention was drawn to the syndrome by Schultz the tide turned to the other extreme and the literature has been flooded with reports of cases under this diagnosis which were, in fact, nothing more than the well known leukopenia of intense infection, formerly called "lymphocytosis

of sepsis." Much confusion has arisen from this and also from the uncertain terminology. Blumer⁸ of Yale did his best to combat this confusion by an article entitled "The Agranulocytic Blood Picture in Conditions Other Than Angina" in which he reminded us that leukopenia occurred in sepsis and other conditions besides agranulocytic angina.

We are now in the stage in which the original definition of the disease is being extended and altered through the recognition of an unexpectedly large number of cases, many of which differ in some respects from the picture described by Schultz. His six cases were all in middle-aged women, living under institutional conditions, all developed gangrenous lesions of the mouth or pharynx, all had fever, and there was a fatal outcome in each. In each a sharp leukopenia was observed. We now know that males may be affected, that lesions may occur along the intestines and in the rectum or vagina, and that all cases are by no means fatal. Our conception of the condition has changed, but we are still in ignorance of its cause. Let me postpone discussion of the various theories on this point until we have discussed the other features of this interesting malady.

Pathology.—Two kinds of lesions seem sufficiently constant to be accepted unreservedly; the first of these includes the ulcers seen during life in the mouth, the pharynx, the larynx, the rectum or vagina, and found at necropsy at various points along the gastro-intestinal tract. In the mouth it is at the gingival margin that ulcers seem most common, and in the throat it is the tonsils and the pharyngeal pillars which are involved. Rarely the skin is involved; I have seen necrotic areas develop at the finger-nail edge, where the patient had picked or bitten at hang-nails.

Wherever the lesion, it possesses similar characteristics; it is a necrotic process, with little or no reactive erythema about it. This has been more evident in the gingival lesions than in those of the pharynx, although even there the lesions have a distinctive appearance. Dr. Fielding Lewis, who has seen several of these cases with me, feels sure he can diagnose the syndrome from the local picture in the throat, and also feels that he never saw this throat picture until the past few years.

The tissue looks dead and its subsequent sloughing out bespeaks its necrotic state. Perhaps I have imagined it, but it has seemed to me that with improvement in the blood count and general condition, there occurred an increase in the reactive erythema about the lesions. In a case which is doing badly the tissues almost melt away. Neighboring lymph nodes enlarge and become painful, and the spleen may enlarge considerably. The liver also may enlarge, and jaundice has occurred in perhaps half of the reported cases.

The other lesion concerns the bone marrow, and here the evidence is less clear. In the first place, the bone marrow is, of all tissues, that most difficult to be dogmatic about. In the second

place, one must be cautious not to be led into describing, on perhaps inadequate evidence, findings which on theoretical grounds one might have been anticipating. Be that as it may, the literature seems to justify the statement that the bone marrow in agranulocytic angina is distinctly abnormal.

It has been described as grossly liquid and of a variety of colors ranging from yellow to red. Specimens obtained by sternal puncture during life or at autopsy have shown varying degrees of hypoplasia with scattered patches of necrosis. Few, if any, of the progenitors of the granular leukocytes, the myeloblasts and myelocytes, are present and no adult granular leukocytes are seen. In sharp contrast the erythrogenetic centers are normal, although the red color of the marrow is more often due to hemorrhage than to hyperplasia of the red cell forming centers. This term is an unfortunate one for it implies a general hyperplasia of all three bone marrow elements, while the actual state may affect only the production of erythrocytes and not the platelets or leukocytes.

Also in agranulocytic angina the parent cells of the platelets are usually present in normal numbers although some of the individual cells may show degenerative changes. Such myeloblasts and myelocytes as are present are badly degenerated.

Probably an occasional case will show a hypoplasia of erythroblasts or of megakaryocytes or both, for cases have been reported with anemia and with thrombopenia. Such cases obviously approach closely the picture of aplastic anemia.

Doctor Baldwin Lucke of our pathological department has also observed and described a necrosis of the intimal and muscle layers of the smaller arteries much like that seen in so-called malignant hypertension.

Laboratory Data.—The urine is that of any febrile condition; the feces may contain blood if ulcers of the bowel are present.

Interest centers on the blood count. The hemoglobin and the red cell count may be normal, and the early presence of anemia suggests a preceding cause. A few cases are on record with unexplained severe anemia, but these are open to the suspicion of being instances of aplastic anemia. Anemia has played no part in the cases which I have seen, but in each we have employed frequent transfusions. In fact, plethora and polycythemia have worried us more than anemia.

The number of platelets has been normal in some cases, low in others. Unfortunately the majority of reports contain no count of platelets. In our case Mrs. S. the lowest figure was 67,000. Kastlin⁹ reports that the platelet count was normal in twenty of twenty-seven cases collected by him from the literature, but no figures are given and it is probable that the cases were of various kinds of leukopenia inasmuch as one of the two personal cases reported followed upon the injection of arsphenamin. Allan's¹⁰ case had a platelet count of 15,000 and a widespread purpura. Aubertin and Levy¹¹ include thrombopenia as a constant feature of the condition, while Friede-

mann states that in all his cases the number of blood platelets was normal or increased. More data is needed on this point.

It is the white cell count which is most important. At the height of a severe attack the picture is easily described; the total count is down to 1000 or less. Counts as low as 400 are not uncommon. The lower the total count the fewer granular leukocytes, neutrophilic, eosinophilic, or basophilic are seen; while with a very low total count often none may be discovered in a prolonged search of the stained blood film; only lymphocytes and monocytes are present. When, for example, the differential count reads 90 per cent of lymphocytes and 10 per cent of monocytes and the total count is 800, there is not only an absence of granular cells but a distinctly reduced number of lymphocytes and monocytes present.

When only an occasional granular leukocyte is seen, the cells are apt to appear irregular and poorly stained as though damaged.

At first it was thought that the leukopenia followed the angina; now it is recognized that often, if not always, the white count drops before the onset of systemic or ulcerative symptoms appear. Apparently the onset of leukopenia precedes other symptoms by several days and some have attempted to relate this period to the assumed duration of life of the leukocyte, which is about four days. It is suggested that the count does not reach its lowest level until four days after the marrow has ceased to produce cells. During this period the cells already in the circulation die off. Many records agree that the early drop is gradual and not severe; early counts give figures of from 4000 to 2000. If the attack progresses, the leukopenia becomes more marked, the last count before death often being the lowest. If the attack proves mild, the leukopenia never becomes very severe, and if the attack aborts without going on to ulceration the count may drop no further and may, in fact, soon rise.

Improvement in symptoms, local or general, is always preceded or accompanied by a rising white count, but convalescence may continue while the white count remains in the neighborhood of 5000. Evidence supports the assumption that during the period of rising count young granulocytic forms are first to appear and are present in greater than normal percentages until time sufficient for them to mature has elapsed.

(To be continued)

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DEAFNESS—A VITAL SOCIAL ECONOMIC AND MEDICAL PROBLEM*

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MY object in presenting a discussion of a topic so old and time-worn as deafness is to bring before you, if possible, a very practical discussion of the needs of the deafened and our responsibilities as physicians in the rehabilitation of the deafened.

THE NOMENCLATURE "DEAFENED"

In dealing with this subject I have chosen the latest nomenclature, using that broader and more inclusive word "deafened" instead of deaf.

Dr. Alexander Graham Bell, famed inventor of the telephone, whose work in the aid of the deafened has given him the honored title of "patron saint," always referred to the condition as "imperfect hearing," rather than "hard of hearing." His own wife was for many years one of the incurably deafened.

Primitive peoples destroyed their deafened and blind, or held them in awe, keeping them locked up or in seclusion, as they did their insane. A deafened person was regarded as a family encumbrance and a great disgrace. Later they were allowed to live, but were treated with great cruelty. In Holy Writ we read that "The Lord commanded Moses, saying, Speak unto all the Children of Israel and say unto them, Thou shalt not curse the deaf, nor put a stumbling block before the blind, but shall fear thy God."

Under Roman law, persons born deaf were deprived of all civil rights and were required to have guardians.

THE HANDICAP OF DEAFNESS

Deafness, no matter how slight, is a mountain some cannot climb.

Few learn to accept the handicap gracefully. In fact practically everyone who acquires deafness goes through "hell" mentally, physically and unfortunately in most instances, economically.

If any one of us should try going about with our ears stuffed with cotton, shutting out all pleasant sound, we would better appreciate the handicap of the deafened and the tragic plight of the person, child, or adult who has lost, or is losing, his hearing.

Seventy-five years ago Sir William Wilde, a noted Dublin aurist, summed up deafness in one aphorism: "There are two kinds of deafness—one due to wax, which is curable; the other is not due to wax and is not curable." Is it not a regrettable fact that, with all our modern study concerning chronic deafness, this statement is still so largely true?

In the realm of specialized medicine the otologist has accomplished much in the treatment of the sick both medically and surgically, but in cases

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of chronic "deafness," either of the middle ear or labyrinth, there are, with rare exceptions, few laurels to be recorded. There are still two regrettable facts confronting physicians—the incurability of so many who apply for relief, and the equally well known fact that, despite all efforts, the percentage of incurably deafened is steadily increasing.

HEARING ACUITY STATISTICS

The total number of deafened persons in the United States has now been quite accurately determined to be about ten million. Of that number over three million are of school age and are about ten per cent of our school population. It is from this school group that much of our knowledge concerning the incidence of deafness has been obtained.

Case records of otologists have been difficult sources from which to secure accurate information. Our standardized examinations of men, preparatory to their entry into service for the World War, and the testing of hearing of large groups of children in the public schools has perhaps given us the most dependable data. What has been needed for a long time has been a practical instrument combining great accuracy with speed for mass service in measuring the hearing. Such a device should be able to record the lesser defects, which are the prodromal signs of more serious oncoming loss of hearing.

AUDIOMETER MASS TESTING

At last such a mechanism has been perfected by the Western Electric Company, which has developed the No. 4-A phono-audiometer. This portable and sufficiently simple electric audiometer, with multiple ear attachments, can be accurately operated by any well trained school physician, nurse, or teacher, so that the hearing of twenty-five to one hundred persons, whose intelligence is that of a normal child of seven years, can be recorded in the space of forty to sixty minutes. The average cost of the test is estimated to be ten to twelve cents per pupil. The initial cost of the instrument is considerable, but not more than any city or county school system can well afford.*

In California the city schools of Los Angeles, Long Beach, San Francisco, Fresno, San Diego, Santa Barbara, and Stockton, each now have and are using the No. 4-A audiometers. A number of other school systems in the state have already budgeted for this instrument and at an early date will have it in use. The plan usually adopted is that all teachers and pupils be given an annual or semiannual hearing test. Where advisable, the test is repeated for greater accuracy and for study of doubtful or problem cases.

HEAVY FINANCIAL BURDENS ON SCHOOL SYSTEMS

Many school systems in the United States have undertaken a study of the cost of imperfect hear-

ing to the taxpayer due to retardation of their school population. In the city of Rochester, New York, an examination of the records of 349 deafened retarded children showed that this group had repeated grades 441 times. A few of these children had repeated their grades as often as five or six times. The control used was 349 normally hearing children in the same school who had repeated grades but 130 times. It was thus determined by computation that 211 children whose class-repeating work was traceable to deafness had cost the city of Rochester the sum of \$26,460, an average of \$125 plus per pupil. This ratio during the average school life of the child would indicate that the cost for repeaters in Long Beach would amount to \$2,321,000; in Los Angeles County to \$24,317,750; in the State of California to \$75,960,000; and in the United States to \$1,964,884,750. These figures are all far too low for California, since the average annual cost per pupil is greater. In Long Beach the per capita yearly instruction cost is \$156.60, to which should be added a capital investment cost of \$94.04. This would make an actual cost per pupil in many California cities of \$250.64, an amount which is double that upon which these basic cost estimates are computed.

TRAGEDY OF DEAFNESS TO INDIVIDUALS

We may be very certain, therefore, that in any large school system a huge sum is wasted on these deafened repeaters. A considerable amount of money in any school system may, therefore, be wisely spent in the detection of deafness in its early and most preventable or curable stages. It should also be remembered that these retarded children become careless and discouraged and leave school at the first opportunity. A large majority of them have good minds, but ultimately find themselves in the unskilled labor class, due chiefly to want of education.

We must also realize that about 90 per cent of the vast army of our adult deafened in childhood or later were incipient cases and were curable. The cost in dependency, loss of efficiency, and unnecessary mental and physical suffering is simply appalling.

We physicians, leaders in public health work, advocating and believing in preventive medicine, should do all we can to teach and practice deafness preventive measures at every opportunity. A generation ago tuberculosis, typhoid and yellow fever, malaria, and diphtheria were our major health problems. The cause of each of these is now known and a program of prevention and cure have relegated each to near extinction or to a place of secondary importance. Today cancer, heart disease, and incurable deafness are the three major public health problems in the United States. Each is definitely on the increase and each has reached appalling proportions. Of the first two diseases little is known relative to their causes. Great concern is felt and generous gifts have already been made to enable research workers to pursue studies in both cancer and heart disease.

* Editor's Note.—See article on Conservation of Hearing and the Hard of Hearing Child, by Frank H. Rodin, in November, 1927, California and Western Medicine, page 643.

As to the problem of deafness, little has been accomplished so far in the study of its causes or prevention, but prospects are brightening.

With the coöperation of the membership of the American Otological Societies and many otologists in Europe, and with funds from interested laymen, an intensive research program is being launched to investigate the causes of incurable deafness, particularly the causes of otosclerosis. Johns Hopkins, Columbia, and Northwestern universities are coöperating and have offered laboratory facilities to carry on particular phases of this research work. Deafened persons throughout the world are invited to coöperate by devising in their wills to a deafness research foundation the gifts of their temporal bones (Hooper Foundation of the University of California) with a carefully made history of each case.

The Carnegie Foundation has made available \$90,000 to start some of this research work. Two and a half million dollars of the endowment fund is hoped for in gifts within five years, and an ultimate \$10,000,000 endowment, it is expected, will be provided. Thus a long delayed and greatly worthwhile undertaking has been launched. The fact that so little systematic research work in this field has been undertaken up to the present time lends hope to the thought that by these efforts the causes of deafness may be found and valuable light thrown upon its prevention and cure.

THE BOON OF LIP READING

"In all nature to cease to grow is to perish." So it is with the deafened person. His education was once a hopeless and is still a difficult problem to solve. It is recorded that Lucretius wrote:

To instruct the deaf, no art could ever reach,
No care improve them, and no wisdom teach.

In the seventeenth century the venerable Bede described a miracle wrought by his former teacher which consisted in teaching a deaf person to speak.

There is an old saying, "When God closes one window, he opens another a little wider."

This is what happened in 1864, when Harriet B. Rogers first taught a little deaf girl to read lips and to speak our common language. Miss Rogers learned the art of lip reading from Julius Muller-Walle of Hamburg, Germany, the inventor of the system of lip reading which bears his name. He was the founder of the first school of lip reading. This method is still widely taught in Europe and in this country in schools for the deafened.

In 1903 Edward B. Nitché of New York modified the Muller-Walle method, and founded a school in that city for teaching what is known as the Nitché System. Since that date lip reading has largely supplanted the finger alphabet for all the deafened save a small group of the institutionalized, who are almost or quite totally deaf or are both deaf and blind.

Several of the larger colleges and universities in the United States now give summer or regular courses in lip reading for teachers, and there are

many large public school systems in the United States where lip reading classes for deafened pupils are conducted by specially trained teachers. Since adult education has become established in many of our public school systems the adult deafened are being offered well arranged, graded courses in lip reading. These are supplemented by cultural studies for those advanced enough to profit by such instruction.

The Long Beach Polytechnic High School established their first lip reading classes for adults January 2, 1922, under the leadership of one of their present teachers, Mrs. Louise K. Wilmot (née Miss Kline), a former public school teacher who had been trained in the Nitché School, after having herself become a victim of incurable deafness. She was the first deafened teacher of lip reading to be certified by the California State Board of Education.

SPLENDID WORK OF THE LEAGUES FOR THE HARD OF HEARING

Perhaps the greatest triumph for the deafened of modern times is seen in what the deafened have accomplished for themselves. Notably by their coöperation in the establishment of leagues or societies for the practice of lip reading for mutual, intellectual, social, recreational, and economic rehabilitation. In 1916, leagues had been established in New York, Chicago, Boston, and a few other of our large cities. By 1919 the number had increased to thirty-five, and has now reached ninety-three—a phenomenal growth.

Very early Dr. Wendell C. Phillips of New York, a noted otologist and practical philanthropist, saw the possibilities of bringing these widely separated groups into closer touch for mutual help and larger service. This resulted in the founding of the American Federation of Organizations for the Hard of Hearing. He became its first president. This national federation is enlisting the active coöperation of the deafened themselves in their problems, coördinating local leagues with all other agencies interested in the problem of the deafened. Almost all of the city leagues have a large and enthusiastic membership. All are rendering a valuable service to the cause of the deafened in their respective communities.

THE "VOLTA REVIEW" AND "AUDITORY OUTLOOK" PUBLICATIONS

Dr. Alexander Graham Bell, previously mentioned as an ardent sponsor of measures for aiding the deafened, founded and financed in 1920 the *Volta Review*, the first official publication in the United States devoted exclusively to the interests of the deafened. About one year ago the Federation of Organizations of Hard of Hearing undertook the publication of another monthly journal, *The Auditory Outlook*, as its own official organ. Both of these publications furnish dependable news items and other information each month of especial interest to the deafened. They afford a splendid mouthpiece through which the deafened themselves may voice their thoughts.

Each of these journals is ably edited by a deafened person. One, at least, of these magazines should be on the waiting-room table of every physician in the country.

LIP READING TRAINING OF MAJOR IMPORTANCE

Lip reading is practiced to some extent, no doubt, though unconsciously by most of us who hear well, but for the partially deafened or the very deaf it is a constant aid and a priceless art. Otologists generally now recommend the teaching of lip reading to all those whose hearing is below 70 per cent in their best hearing ear. It is now quite generally accepted as the best known substitute for or aid to the hearing ear. Physicians and school authorities seem in perfect agreement that upon the first suggestion of oncoming incurable deafness, whether in a child or an adult, the acquiring of lip reading should be undertaken without delay. Testing of the hearing of the pre-school age child is especially recommended and the teaching of lip reading should be started for any whose hearing is found to be subnormal from chronic causes. In many states incurably deafened children are legally admitted to lip-reading classes in the public schools as early as three years of age, and the younger the children the more readily they acquire facility in lip reading. Children with impaired hearing in school and out often increase their handicap by the strain put upon their hearing organs. The acquiring of lip reading relieves this strain and often permits the child to continue his studies in the regular classes upon acquiring a thorough mastery of "hearing through the eyes." Deafened children under twelve years of age, of normal mentality become good lip readers in four to six months. When this has been accomplished they should then be returned to the regular classes both for their social and mental contacts, and because of the lessened cost of their further education.

No person of average mentality who sees well is too old to learn lip reading. I have observed several women and a few men in our Long Beach adult education lip reading classes who have passed their seventieth year, even as old as eighty-five years, who have had their social and psychological point of view greatly improved by taking up lip reading in these special classes. The benefits derived by the members of the league through frequent social get-together meetings of the members, where games, dancing, dinners, picnics, and occasional lectures, and the women's groups for their afternoons at needlework, making garments for the local charities, have brought out the "shut-ins," the recluses, the discouraged and disheartened, and has performed a service in social uplift for themselves that cannot be overestimated. Learning to "hear through the eye" is the best and often the only means of restoring the deafened individual to an approximately normal life.

Dr. Wendell C. Phillips, in the course of some recent remarks, said: "Of all the accomplishments that may be reasonably attempted by a deafened person that of lip reading offers the greatest

hope, and we otologists fail to meet our highest duty when we neglect to advise even those in the earlier stages to commence to 'hear with the eyes.' The skill of many lip reading pupils almost approaches a genius, and the relief of nerve strain among lip readers may easily be noted."

Dr. Norval H. Pierce, formerly a noted otologist in Chicago, but now retired and living near La Jolla, California, has often told his incurably hard of hearing patients, "You should take up lip reading. It is one of the greatest achievements I know of, and by far the best substitute for good ears yet known."

The Chicago Otological Society last year, through the efforts of its president, Dr. Harris, voted every member of the society a member of the Chicago League for the Hard of Hearing. If every member of the society now being addressed would go home and join his local league, or if he does not have one in his city proceed to organize one, he could add a real jewel to his crown. I feel very proud to have been a charter member of the Long Beach League and to have had some part in the splendid work it has accomplished.

DEAFNESS AND SAFETY HAZARDS

From the standpoint of safety the wide prevalence of deafness has become a very serious problem in all countries, particularly in the United States. Recent statistics tell us that 12 per cent of all traffic accidents are directly traceable to deafness of driver or pedestrian. In Vienna, Austria, all the deafened are required to register, and more than one hundred thousand of them have membership in an organization known as the "Vox Society." Each member is pledged when on the street or highway to wear a brassard or band ten cubic centimeters wide, yellow in color, on his left sleeve (they have left-hand drive there) on which are three round black spots the size of our fifty-cent piece. This insignia is well known to the police and the motoring public. It is approved by city authorities, physicians, and the public. With the continually increasing list of fatalities and accidents due to imperfect sight and hearing, we physicians, guardians of the public health and welfare, should increase our efforts to secure added traffic safeguards for the deafened as well as for others.

VOCATIONS FOR THE ADULT HARD OF HEARING

I have referred to deafened teachers elsewhere. A few of them by a process of reëducation find their economic independence restored as teachers of the adult deafened, but a great majority must temporarily or permanently change their occupations and very frequently to a much less remunerative and less congenial form of employment. Of all deafened people, about 37 per cent must radically change their occupational plans for life. If the deafened person is a woman, she may marry and thereby become economically independent, but even then she often suffers much unhappiness through apprehension, often regarding herself as unfit for motherhood because she may transmit her misfortune to her offspring.

There are a considerable number of occupations in which the deafened may engage and expect but a slight economic handicap. Such positions as x-ray technicians, nurses, typesetting machine operators, multigraphers, engravers, beauty culturists, floor layers, acetylene welders, gardeners and in general agriculture, but the educated man or woman usually confronts a very decided reduction in his earning capacity and finds necessary a very definite readjustment of his personal and family standards of living. For these we must feel a keen note of sympathy, for deafness has placed upon them a heavy burden. Our duty as physicians is to offer these people every possible encouragement, every ray of hope. Here again lip reading, obtained often through a local league for the hard of hearing, offers the greatest intellectual, social and economic assistance.

FEDERAL REHABILITATION PROGRAM

After the World War the government established a Bureau of Rehabilitation where deafened and other war disabled men and women might secure special educational guidance while readjusting their shattered lives. Later, legislation permitted states to extend this to all handicapped citizens, the states and the federal government sharing equally in the cost. California, through its Department of Education, Rehabilitation Division, is carrying on this work by means of traveling social service workers and teachers somewhat after the plan which permits the state to provide teachers for the blind in their own homes. Many deafened persons are finding help and larger opportunities through this agency.

MECHANICAL AIDS TO HEARING

I purposely shall refrain from any lengthy discussion of the multitudinous number of mechanical aids to hearing, other than to say that there are now a few very well worthwhile portable hearing instruments, which in selected cases are of practical use to the deafened. The larger instruments for installation in churches, theaters, and auditoriums give practical aid to the hearing for larger groups of the deafened, especially when supplemented by the art of lip reading.

One of these devices, the Radio-Ear, is being used extensively to reëducate the ears of the deafened persons who never heard, or once hearing have lost their sense of sound through prolonged disuse of their hearing organs. Others perhaps worthy of special mention are telephonic devices with which the very deaf may hear by means of bone conduction or finger touch. One of the latter equipments has been used at Gallaudet College for the Deaf under the direction of Professor Gault of Northwestern University, who describes it as consisting of a transmitter which magnifies the human voice about 175 times. These immensely multiplied vibrations are carried to a receiver somewhat like the radio-ear phone. The deaf listener presses one finger against the disk to get the vibrations and hears through his touch. A less elaborate device is being offered for attachment to the family radio or telephone, with a contact plate on the transmitter held between the

teeth or placed over the mastoid bone, permitting sound to pass by bone conduction to the organs of hearing.

No group of handicapped individuals suffering with an incurable disease has had so formidable an array of human vultures prey upon them. The quack cures advertised to cure chronic deafness, both as to concoctions and devices, are legion.

Who among you has not scanned the advertising pages of magazines and newspapers which, to the great discredit of such publications, print for profit false and misleading advertisements of machines that are useless if not actually harmful to the deafened.

We should make it our business to be informed about such appliances and be able to furnish dependable information to those who come to us for advice. It is a service the deafened themselves should seek from us and every doctor be able to honestly and dependably provide.

PREVENTION THE KEYNOTE

Finally, the greatest hope for the deafened lies in prevention rather than in cure. Unfortunately we rarely see the deafened early enough to be of the greatest assistance. Too often we only see the end results when any mode of treatment is of little avail. Earlier attention to the ears, nose, sinuses, and throat during the acute sicknesses of childhood is all-important. The early removal of diseased tonsils and adenoids and early drainage of abscesses in ears, teeth, or sinuses will do much to avert disaster later, especially for those who are predisposed by heredity to deafness. Such measures, with general and special health education for parents through child welfare agencies and the teaching and practice of birth control, and general home sanitation in the interest of better health, appears to be our future hope for the deafened, and I might almost say for the future of the human race.

As physicians and health teachers it is our duty to bring these messages to all the people, for it is by their coöperation the present problem of the deafened may be solved.

Will we of the medical profession accept this great opportunity and responsibility or fail in the undertaking?

1214 Pacific Southwest Bank Building.

DISCUSSION

ISAAC H. JONES, M. D. (1930 Wilshire Boulevard, Los Angeles).—Deafness cures and cancer cures—what an endless amount of confusion has centered around such subjects, not merely the plain charlatan, but an actual understanding of what really can be done and what really cannot be done. I venture the following three paragraphs, giving three questions and answering "Yes" to each one.

(1) Question: Are there certain conditions of the ear in which the deafness can be relieved and the hearing improved? Answer: Yes.

(2) Question: Are there certain conditions of the ear in which deafness cannot be relieved and the hearing cannot be improved? Answer: Yes.

(3) Question: Is it true that regardless of the nature of the hearing defect that something can be done to improve and relieve the condition of the individual himself? Answer: Yes.

The first two sharp classifications concern the ears themselves. It is possible now, by precise methods of measurement, to determine in which classification the ear of any given individual belongs. The third paragraph, however, embraces all types and indicates even the most utterly forlorn type of case, such as Helen Keller, that something can surely be done for the individual herself. In the patient who has vision, of course the great help is in lip reading. Another help is along social lines, and this is gradually attaining a greater and greater usefulness through the American Federation of Organizations of the Hard of Hearing, which has an excellent local chapter in Los Angeles.

✽

FERRIS ARNOLD, M. D. (609 Security Building, Long Beach).—Doctor Rogers has given us a very able and appropriate paper. No doubt his figures as to the number of hard of hearing in this country has been news to most of you.

Those of us who are aurists find the problem of informing the patient as to the exact status of his hearing a difficult one. One needs to be cautious in statements made because of the psychic element involved. The patients are always apprehensive and expect the worst. Fortunately a great many of them have some hearing left, and this fact should be stressed to them. It is a question as to what always constitutes useful hearing.

In our experience with the audiometer we have been careful to explain to the patient just what the curve means in terms of useful hearing and are careful not to use the expression of percentage. Many people have slight loss of one or more of the tones without appreciable difficulty in hearing.

An interesting survey of causes of deafness in children in public schools for the deaf has recently been completed by the Division of Medical Science Committee, National Research Council, under the direction of Dr. George E. Shambaugh of the University of Chicago. This report covers examination results in about five thousand cases. Of these cases, 3334 were congenitally deaf; 2014 had acquired deafness. Of the acquired cases, 61.71 per cent acquired deafness before three years of age.

✽

ELWOOD A. STEVENSON (Principal, California State School for the Deaf, Warring and Parker streets, Berkeley).—To the Editor: Your letter of February 13 has interested me very much and naturally has struck a very responsive chord since this is the very thing most of us have been wanting to do for years.

The field of special education has suffered for years because of the lack of understanding on the part of the layman. Of all education, it is the most scientific and most difficult. Its advancement and progress depend largely upon the understanding and appreciation of the public.

One of the most important vehicles for the dissemination of proper information and correct data would be the medical profession. It is your group that contacts the "special" child and his parents and it is you to whom the parent looks for information and guidance. Therefore, in all special education the physician and specialist play an important rôle. I am only too happy to be of assistance and service to you in this request and am at your command at any time.

First, keep in mind that a deaf person (child or adult) and a deafened person present two entirely different problems, educationally and psychologically. Never confuse the two in any way. The deafened person is the hard of hearing individual. In very simple language and analysis the distinction is this:

1. The *deaf* person, although in eight cases out of ten possessed of sound perception, does not hear and respond intelligently to spoken thought or language. In testing he may test 20 per cent and 35 per cent in

response to sound stimulus, nevertheless this is not hearing as you and I commonly understand the term hearing.

2. The deafened or hard of hearing person is one who, although his hearing defect may register as low as 10 per cent, retains actual hearing and can respond intelligently to spoken thought and language provided the source is brought within his hearing range, either through loud speaking or through the means of hearing aids.

All success in the attack of the problem of the child and the adult (the deaf and the deafened) depends entirely upon the proper understanding and appreciation of this premise. Emphasize this difference and distinction, hammer it home at every opportunity, and you will be rendering both types a far-reaching service. I am afraid that I could go on continuously on this very vital and little understood subject, but I must stop in order to afford you the data requested.

In educational work with the deaf, it is all instructional and demands specially trained and experienced teachers. The minimum special training in addition to the regular normal training is one year. To use methods of amelioration for the deaf that are commonly used for the deafened (hard of hearing) would be ruinous and contrary to all procedure.

For the deaf the State of California has a residential school at Berkeley, California. Here deaf children between the ages of five and twenty are admitted. They are taught speech and lip reading and all subjects common to the public school system. The course carries the average deaf child to and through one and one-half years of high school work.

Then, too, certain city school systems such as San Francisco, Oakland and Los Angeles, have special classes for the deaf child. However, whereas the State School, because of its equipment and complement of teachers can care for all types of deaf children (all must be normal mentally, of course) these special classes follow one set and fixed system and method of instruction. This in itself, for the benefit of the future of all deaf children, would demand that all factors governing a deaf child's life should be carefully and thoroughly studied, without prejudice, and the results of such study should determine which placement is the better for the future.

In the matter of the hard of hearing we have an entirely different problem. It is not the abnormal and scientific mental approach as required with the deaf. With the hard of hearing, generally speaking, the language basis and its interpretation have been made. The speech and hearing centers have had normal reaction and usage to outside stimuli. This problem is answered by lip reading. However, do not take this as indicating that lip reading is the panacea of the hard of hearing. All hard of hearing people cannot learn to read lips. The continued use of acousticon and hearing devices bear this out. Yet, every hard of hearing person should have instruction in lip reading. Some succeed and some do not. A great factor governing the success is the type of mind—analytical or synthetical, the former being better for lip reading success. Then again good vision and good health are factors to be considered.

There is more systematic and concentrated work being done for the deafened (hard of hearing) adult than for the hard of hearing school child. California is doing more constructive work in this field than any other state. At present, Los Angeles and San Francisco endeavor to care for the hard of hearing child in the grades and in the high schools. Greater accomplishment and more attention will be given the hard of hearing child very soon.

More than sixty cities throughout the country have such arrangements for the hard of hearing child.

For the deafened adult, there are evening classes in approximately ninety cities in the United States. Of this number there are thirty-three in California, which is a very good sign of progress made in our

state. The state has a director of this work who is assisted by a Board of Normal Instruction, and everything possible is being done to promote the thought.

Below is the list of cities giving work:

Northern District

Alameda High School.....	Alameda
Kern County High School.....	Bakersfield
Berkeley High School.....	Berkeley
Eureka High School.....	Eureka
Fresno School.....	Fresno
Martinez High School.....	Martinez
Technical High School.....	Oakland
Sutter Evening High School.....	Sacramento
High School of Commerce.....	San Francisco
High School Department of Adult Education..	San Jose
San Leandro High School.....	San Leandro
San Mateo Union High School.....	San Mateo

Southern District

Alhambra	Monrovia	Santa Monica
Glendale	Pasadena	Santa Barbara
Hollywood	Pomona	San Bernardino
Inglewood	Redondo	Van Nuys
Lakeside	Redlands	Venice
Los Angeles	Riverside	Vista
Long Beach	San Diego	Whittier

Chief of Bureau for Deaf and Deafened: E. A. Stevenson, Berkeley.

Governing Board of Normal Instruction: Miss Coralie N. Kenfield, 619 Shreve Building, San Francisco; Mrs. Theodore Poindexter, 1425 Taylor Street, San Francisco; Miss Lucy Ella Case, 429 First Trust Building, Pasadena.

MONILIA INFECTIONS OF THE SKIN*

By HIRAM E. MILLER, M. D.
San Francisco

THE monilia or yeast organism found in human thrush was isolated by Langenbeck in 1839. It was the first time a fungus was described as being the cause of disease in man. In the next few years the organisms of favus, ringworm, and tinea versicolor were observed. Mycology was a well-founded science for almost half a century before the discoveries of Pasteur and Koch in the field of bacteriology. Mycology, however, has been so overshadowed by bacteriology that it has been almost a forgotten science even until the present day. Considerable progress has been made in the study of mycology in tropical countries. We are just beginning to discover that many fungous infections also occur in our temperate climates.

The term "monilia" is applied to those yeast-like organisms that have budding forms and mycelial threads in tissue and mostly budding forms in culture. Many of the monilia organisms are always saprophytic and others are always parasitic. There are some, however, that are saprophytic at times, but under certain conditions become pathogenic. This point has been emphasized in a recent article in the *National Medical*



Fig. 1.—Interdigital erosion between fingers due to monilia infection.

Journal of China. These investigators were unable to produce experimental monilia infections in the lungs of rabbits unless they had previously traumatized the lungs with small stable emboli. This suggested to them the necessity of some preëxisting pathological process before monilia organisms could cause disease. This same course of events probably takes place in monilia infections of the skin. The tissues may be less resistant due to a disturbed metabolism such as is found in diabetes or the excess perspiration and maceration of tissue in the flexures of stout individuals may be sufficient to permit the development of the disease. Monilia may attack any organ of the human body, the skin being the most frequently involved and the nervous system the most rarely affected. I wish to review some of the common monilia infections of the skin and emphasize the findings in some of them.

CLINICAL MANIFESTATIONS

1. *Thrush* is characterized by the presence of small white flakes or larger patches on the tongue or buccal mucous membrane. It is of rather common occurrence in young infants, but may occur in adults. It does not develop on a normal mucous membrane. Slight abrasions caused by nursing or rough methods of cleansing the mouth may favor the development of the disease. It has also been found in the vagina, on the female breasts, and on the penis. Many different types and species of monilia organisms have been isolated from the lesions of thrush.

2. *Erosio interdigitalis blastomycetica* is a well defined sodden erosion which occurs on the webs of the fingers, particularly between the middle and ring fingers. The lesions are usually bilateral and limited to this particular interspace. Women doing considerable laundry work are most frequently affected. The long-continued soaking of the hands in water seems to predispose the individuals to the development of the disease.

3. *Paronychia* due to monilia organisms have been described in workers in pear canneries and in orange juice establishments. Moisture from constantly having the hands in water predisposes the workers to the infection. The infecting organisms came from the pears and from a type of decay found in some oranges.

4. *Pruritus ani or vulvae* due to monilia organisms is not uncommon. The characteristic intertrigo with fissuring in the depths of the folds is

* From the division of dermatology, University of California Medical School.

*Chairman's address, Dermatology and Syphilology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

generally present. There are usually many small satellite desquamative lesions at the periphery of the intertrigenous areas. There is often an associated vulvovaginitis with a characteristic mottling of the mucous membrane. Positive monilia cultures may be obtained from the vaginal smears and sometimes from the stools. In my experience most of these patients have been rather stout and have been most particular about cleanliness and personal hygiene.

5. *Intertrigenous infections of the toes by monilia* are quite characteristic. All interspaces are usually involved, but unless the toes are separated the lesions are not visible. The skin of the interspaces is macerated just to the edges of the apposing surfaces of the toes. Here it ends abruptly. Vesiculation, as found in the usual ringworm infections of the feet, is not present. The few patients that I have observed with this infection between the toes have been well past middle life, have been overweight, and have had excessive perspiration of the feet.

6. *Inframammary intertrigenous monilia infections* frequently occur and may be quite extensive and severe. There is an erythematous denuded area limited to the apposing surfaces with fissuring in the depths of the folds. There may be a slight crusting due to the exudation of serum. Pin-head to pea-sized desquamating satellite lesions at the periphery of the intertrigenous lesions are usually present. Most of these patients are stout women who perspire freely.

THE MONILIA ORGANISM

Monilia is a yeast-like organism that has budding forms and mycelial threads in tissue and mostly budding forms in culture. It is so closely related to the moulds that it must be considered with them. Those organisms that grow by branching filaments which form a mycelium are called moulds, while those rounded cells that multiply chiefly by budding are called yeasts. The exact



Fig. 2.—Inframammary intertrigo due to monilia infection.

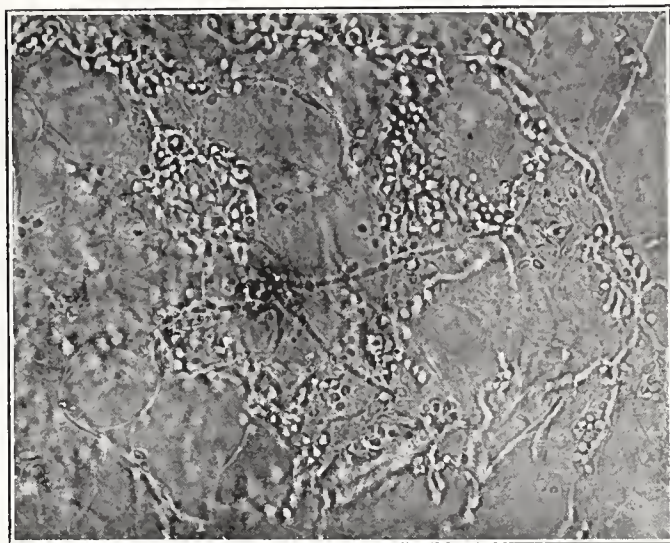


Fig. 3.—Mycelium and spores of monilia. Potassium hydroxid preparation of skin removed from patient shown in Figure 2.

place of monilia in the mycological table has not been determined. There are many species described and the classification is made on the fermentative characteristics of the organism in the sugars. As this changes after a few transplantations, and as monilias with identical fermentative reactions vary enormously in their virulence, it can be seen that a satisfactory classification is impossible at the present time.

When tissue is obtained from the border of the intertrigenous areas and cleared with 10 to 25 per cent potassium hydroxid the organisms can generally be demonstrated. The characteristic spores and mycelial threads are shown in the accompanying photomicrograph. The mycelial elements are considerably finer than those seen in ringworm infections. The spores are generally grouped around the ends of terminal hyphae.

Monilia grows well on dextrose, agar, and Sabouraud's media. The colonies are generally white or yellow in color, but in rare instances may be pink, red, or black. The early colonies are slightly raised and smooth and resemble an ordinary staphylococcus colony. The older colonies are considerably raised and often have an irregular crateriform appearance.

DIAGNOSIS

It is necessary to differentiate monilia infections of the skin from ringworm and intertrigenous eczema. The absence of vesiculation and the limitation of the eruption to the apposing surfaces are of the most importance in ruling out a ringworm infection. An intertrigenous dermatitis should not be classified as an eczema unless there has been considerable mycological study. One must also remember that monilia and other yeast-like organisms belong to the normal flora of the skin and that their mere presence does not necessarily signify that they are the cause of the eruption.

TREATMENT

In undertaking treatment it must be borne in mind that monilia infections do not develop on

normal skin or mucous membrane. Mechanical trauma, malnutrition, excess perspiration, etc., predispose to the infection. Mild parasitocides in conjunction with general hygienic care and strict attention to any underlying cause will generally clear up the condition. Thrush of the mucous membrane in children generally responds to cleansing the mouth with a soda bicarbonate solution or painting it with Berwick's dye (one per cent gentian violet and one per cent brilliant green in 50 per cent alcohol). The interdigital erosions on the hands are quite resistant to all therapy. Whitfield's ointment, iodine, roentgen-ray therapy, radium, etc., have been used in these cases. The paronychia lesions respond to the usual therapy used for mycotic infections in these areas. Roentgen-ray therapy, mild parasitocides, and sometimes surgical removal of the nails will result in cure. The intertriginous areas between the toes, under the breasts, etc., are probably best treated with potassium permanganate (1-5000) or with Berwick's dye. I have also found 10 per cent silver nitrate to be of use in these infections. In general, ointments are contraindicated and I have not found roentgen ray or ultra-violet light to be of value.

SUMMARY

A review of monilia infections of the skin is given and emphasis is placed on the fact that these organisms do not develop on the normal skin or mucous membrane. Irritation due to trauma, excessive perspiration, malnutrition, or metabolic disease may predispose to the infection.

Many of the eruptions previously classified as intertriginous eczema are due to a monilia infection. Treatment, to be effective, must be directed against the predisposing factors as well as against the monilia organism.

384 Post Street.

THE TUBED PEDICLE FLAP IN RECONSTRUCTION SURGERY*

REPORT OF CASES

By GEORGE WARREN PIERCE, M. D.

AND

GERALD B. O'CONNOR, M. D.

San Francisco

THE development of the tubed pedicle flap by Sir Harold Gillies of London during the late war was a great step forward in reconstruction surgery, and placed in the armamentarium of the reconstruction surgeon a most useful procedure in planning and completing his work.

TECHNIQUE OF TUBE FLAP FORMATION

As is well known, the tubed pedicle flap is constructed as follows: Two parallel incisions are made, the included tissue is raised and sutured in the form of a tube and the raw areas are then closed beneath the tube. This step leads to numerous advantages in the movement of tissue. There is first a freedom from infection, as all raw areas are closed, and also the blood supply through the pedicle is materially increased. When cut through, after a few weeks a central artery can often be demonstrated throughout the tube. Added to these useful facts is the great advantage of a store of full thickness of skin and subcutaneous tissue which may be transferred to any part of the body, thus enlarging the capacity for the repair of large defects. This full thickness of skin and fat is of far more value than are Thiersch or Reverdin grafts, as the ultimate result will be very near the normal in character, appearance, and function.

* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



Fig. 1 (a), Case 1.—The tubed pedicle from the abdomen has been transplanted to the thigh of the same side, thence to the calf of the opposite leg, and is here shown transplanted to the injured ankle. Note the heavy scar locking the ankle.

Fig. 1 (b), Case 1.—Shows the tubed pedicle spread out, replacing the scar tissue on the foot.



Fig. 2 (a), Case 2.—The tubed pedicle from the abdomen has been transplanted to the elbow, replacing scar tissue in that region.

Fig. 2 (b), Case 2.—The tubed pedicle has been spread out, replacing the scar on the extensor surface of the arm.

This type of pedicle may be constructed in sizes varying from three or four inches in length and three-eighths to one-half inch in diameter to a length of fourteen to sixteen inches and a diameter of two and a half to three inches. They may be used as a simple direct transplant or as a pedicle bearing a larger flap at one extremity. Larger amounts of tissue may be transplanted which are nourished by two, three, or even four tubed pedicles. These flaps may be stepped up end for end at intervals of about three weeks. The number of steps is apparently unlimited and the texture of the skin and underlying tissues shows little change after a series of steps. If any change is evident it is a slight increase in fibrous tissue in the subcutaneous fat. The best source of large tubed flaps is the abdomen or flank, as in this region considerable skin can be removed without distortion or limitation of function.

IMPORTANT CRITERIA

There are several criteria which should be followed in the construction and management of tubed pedicle flaps. In making the tube, usually some of the subcutaneous fat should be removed, but not too much. If too little fat is taken away, the pedicle will be too tight when sutured and the edema resulting from operative trauma will cause a choking of the blood supply. If too much is taken, sufficient blood supply may not remain to support the vitality of the skin. Blood supply may be further guarded by selection of site for the pedicle, keeping in mind

the anatomical distribution of the larger subcutaneous vessels. Care should be used in suturing the angles beneath the ends of the pedicles to the underlying suture line, for this is a point of tension where three suture lines meet. The angle beneath the pedicle may be sutured to the straight side of the raw surface beneath, avoiding this point of low vitality. The after-care of pedicles is of the greatest importance. If white, an insufficient arterial supply is indicated, while a cyanosis means a rich arterial supply and incompetent venous return. If uncared for, the former may result in dry gangrene and the latter in moist gangrene. The remedy in each case is proper gentle massage and frequent warm compresses of normal saline solution of 105 degrees Fahrenheit. Greater heat is apt to blister the pedicles and to favor thrombosis. Massage in the first instance should be afferent and in the second, efferent.

ADVANTAGES OF TUBED PEDICLE FLAP

The tubed pedicle flap is of great importance in reconstructive work:

1. Because the possibility of infection is greatly decreased and the scar in the transplanted tissue is minimized.
2. It can be moved with comparative safety to the tissue itself, relatively great distances, and a considerable number of times.
3. The disability and discomfort of the patient is greatly reduced.

The tubed pedicle flap should not be looked on as a panacea for all the difficulties that the plastic surgeon falls heir to, but we do believe that for certain types of reconstruction that we have in it an almost ideal procedure for more perfect and pleasing results.



Fig. 2 (c), Case 2.—Flexion of elbow after completion of transplantation.

Fig. 2 (d), Case 2.—Extension of elbow.



Fig. 3 (a), Case 3.—Loss of half the external ear from accident. Tubed pedicle made parallel to clavicle has been transplanted upward.

Fig. 3 (b), Case 3.—Tubed pedicle has been transplanted to ear.

Fig. 3 (c), Case 3.—The completed auricle. A small line of healing can be seen on the newly formed lobule.

CASE HISTORIES

CASE 1.—This patient was injured May 12, 1926, when he suffered a third-degree burn of the lateral surface of the right foot and ankle. The burn was deep and involved most of the soft tissue of the area affected. Healing was slow and no skin graft was done. He came under my care on October 11, 1928, and presented the following disability: The entire lateral surface of the right ankle and foot was a mass of scar tissue except just anterior to the external malleolus, where was an ulcer four by three centimeters which had never healed since his injury two and a half years before. The foot was held in strong eversion by the contracture of the scar tissue, and what little walking the patient could do with this foot was done on the inner border of the foot. Not more than 10 degrees motion of combined dorsi and plantar flexion was possible in the ankle, and there was no subastragaloid motion. The ulcer had been under constant medical treatment, but seemed to resist all efforts to heal during these two and one-half years. A great variety of chemical agents had been applied to the wound to no avail. There was a moderate edema of the right foot and ankle. There was nothing in the patient's history or physical findings to

explain the failure to heal. The man was a vigorous adult weighing 182 pounds and was thirty-three years of age. Wassermann test in the blood was negative. The plan of procedure in this case was to reduce infection in the ulcer as much as possible, skin-graft the ulcer with a Thiersch graft to obtain rapid healing, and then at a later date to replace the scar tissue with full thickness skin and subcutaneous tissue to restore function. Smear and culture from the ulcer had revealed a mixed infection of streptococcus and staphylococcus *Pyogenes aureus*. The patient was put to bed, the leg elevated, and normal saline compresses were applied. No other medication was used. The edema rapidly disappeared and within three or four days epithelialization could be seen progressing. We were more than surprised to see this ulcer completely heal in twenty-two days with this simple non-irritating treatment after it had resisted closure by the use of all the so-called tissue stimulants. This was nothing less than an object lesson that nature should be given every chance to proceed with normal healing without interference, a conclusion which is being reached by a large number of surgeons. A similar experience in a number of cases has convinced us entirely in this matter.



Fig. 4 (a)

Fig. 4 (b)

Fig. 4 (c)

Fig. 4 (d)

Fig. 4 (a), Case 4.—Severe burn of face and nose. Scar over the bridge and sides of the nose has been replaced with Wolfe graft. Tip and alae deficient. A tubed pedicle from the clavicular region has been transplanted to beneath the chin and thence to the cheek.

Fig. 4 (b), Case 4.—Second transplantation of tubed pedicle.

Fig. 4 (c), Case 4.—Third transplantation.

Fig. 4 (d), Case 4.—Final shaping of tubed pedicle to form the tip and alae of the nose.

One month later a large tubed pedicle 12 inches long and $1\frac{3}{4}$ inches in diameter was made on the lower right abdomen. Three weeks later the flank end of the pedicle was severed from the abdomen and transplanted into the middle of the anterior surface of the right thigh. From thence it was transplanted to the calf of the left leg and then to the right ankle, as shown in Figure 1 (a).

Transplantations were done at intervals of three weeks. In the illustration the scar of the burn can be seen, also the eversion of the foot. The pedicle was finally transplanted entirely to the foot, the scar tissue excised completely and the pedicle spread out and sutured. Healing occurred normally and the patient returned to work two months after the final operation. He walked without limping, and had forty-degree plantar flexion and fifteen-degree dorsi flexion with approximately one-half of normal subastragaloid motion. The final result is shown in Fig. 1 (b).

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CASE 2.—This patient was severely burned in a tunnel explosion and, among other injuries, sustained a deep burn of the extensor surface of the right arm from the elbow to the junction of the upper and middle thirds. The resulting scar limited flexion to 68 degrees, and even partial flexion caused severe pain in the region of the elbow joint. Fig. 2 (a) shows the scar and the first stage of the scar replacement by a tubed pedicle from the right flank. Fig. 2 (b) shows scar entirely replaced by the pedicle, and Fig. 2 (c) and Fig. 2 (d) show the final result with complete return to normal function. There was entire relief from pain.

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CASE 3.—This patient was injured when an automobile in which he was riding overturned and he suffered the loss of the left auricle. Repair was done by the use of a small-tubed pedicle from the clavicular region, which admirably supplied the necessary type of tissue. The original condition, together with the first step up of the tubed pedicle, is shown in Fig. 3 (a). The next stage where the pedicle is sutured to the antihelix and blended into the remaining helix is shown in Fig. 3 (b). The final result is shown in Fig. 3 (c). Further uses of the small-tubed pedicle are shown in an article by the author on "Reconstruction of the External Ear," *Surgery, Gynecology and Obstetrics*, March 1930, pages 601-605.

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CASE 4.—This patient was injured May 27, 1926, when a supposedly empty 110-gallon sulphuric acid drum exploded while he was cutting it with a torch. Goggles he was wearing protected his eyes, but he received second and third degrees burns of the face, nose, neck, and ears. He also suffered the loss of a leg. Subsequent healing was very slow and resulted in marked scarring of the face, with loss of most of the soft tissue of the nose. The nose was covered with a thin, red, shiny epithelium, and the tip and alae were practically destroyed. The scar over the bridge and sides of the nose was replaced with a Wolfe graft of full thickness skin, and the result of this operation is shown in Fig. 4 (a). Unfortunately the pictures of the original condition were not good, but these illustrations show well the damage to the tip and alae.

The problem of restoring the tip and alae was solved by the use of a Gillies type of tubed pedicle graft in a manner which, I believe, has not been used before. The tubed pedicle was made parallel to the clavicle, then transplanted upward to the nose in various stages as shown in Figs. 4 (b) and 4 (c). It was finally shaped as shown in Fig. 4 (d), giving a close approximation to the normal in contour and appearance.

490 Post Street.

SYPHILIS—THE TREATMENT OF WASSERMANN-FAST AND CEREBROSPINAL BY MODERN METHODS*

By JAMES E. POTTER, M. D.
San Francisco

WASSERMANN-FAST SYPHILIS.—Paul Ehrlich in 1906¹ reasoned that protozoan diseases could not be treated by specific antitoxins, but must be treated by sterilizing the blood stream of the organisms. Attacking spirochetal diseases from this angle led to the discovery and development of salvarsan in 1910. In the course of his experiments, in treating trypanosomiasis with certain specific dyes, he found that if the dosage were too small to completely sterilize the animal of the parasites a race of trypanosomes could be bred which proved permanently fast or resistant to the effects of the drug. Later experiments¹ proved that the same thing will happen in the course of treating acute syphilis, and thus we have cases which are Wassermann-fast.¹³

INTRAVENOUS BISMUTH

Intravenous bismuth was first introduced by Grenet, Drouin, and Richon¹⁶ in 1922, and has many advantages over preparations for intramuscular injections.

The dangers of its use, according to Ritter and Karrenburger,¹⁷ are: (a) shock; (b) yellow atrophy of the liver; (c) weakened serum reactions. If used with caution, however, no untoward results may be expected.

INTRAVENOUS IODIN

After a thorough search of American literature the only reference to the use of intravenous iodine appears in the *Journal of Experimental Medicine*,³ March 1930, as follows:

A new medicine in the treatment of syphilis has entered the field in the form of soluble iodine (Burnham's) for intravenous use. However, it is so new that no authentic data can be given as to its therapeutic value.

M. Biach⁴ of Vienna states that syphilitics tolerate iodine practically in all instances, even when given intravenously in large doses. In its distribution in the various tissues, the heart, liver, and spleen contain approximately the same percentage of iodine, while the average content in the blood is about six times as high. More is deposited in the suprarenals and ovaries, but most in the thyroid gland. When iodine is introduced into the system, thyroid function is frequently stimulated.

TRYPARSAMID

Tryparsamid has proven to be one of the most useful drugs in the treatment of neurosyphilis and has a wide range of possibilities. Its im-

* Read before the Butte County Medical Society, Oroville, September 23, 1930 (by invitation), by Lieutenant-Commander James E. Potter, Medical Corps, U. S. Navy.

* Read before the San Francisco County Medical Society, San Francisco, January 6, 1931 (by invitation).

mediate administration, if given slowly, is not followed by any form of reaction. Its principal virtue lies in the fact that following intravenous injection, arsenic appears in the spinal fluid (Fordyce and Myers¹⁵). However, one should make haste slowly in the use of tryparsamid. Wood and Moore,^{5 2} Solomon and Viets, Pearce and Lillie,⁶ have all reported severe visual disturbances following intravenous injections of this drug. An analysis^{7 2} of 1254 cases of neurosyphilis treated with tryparsamid showed that two per cent had permanent visual damage. It is presumed that tryparsamid affects the optic nerve by way of the subvaginal space. As a spirocheticide it is decidedly inferior to neoarsphenamin.

ELEVATION OF BODY TEMPERATURE

Practically every one of the self-limiting pathological conditions is accompanied by a rise in the body temperature. This condition may be either a manifestation of the process of cure, or it may be only a reaction of the tissues as a result of infection. It is worthy of note that in certain classes of pathologic conditions that ordinarily are not self-limiting the rise of temperature occurs only in the terminal stages. The realization of this fact led to the introduction of toxic substances into the body which would create an elevation of temperature. Other modalities, such as baths and electricity, have been used in this connection.

Wagner Von Jauregg⁸ first reported the use of malaria in the treatment of general paresis in 1917. It is still much more popular in European than in American clinics. Many adverse reports can be found in the literature. Gonzalo R. Lafora⁹ of Madrid (1930) states that mental disturbances following malaria therapy of general paralysis have varying aspects. During the febrile attack, delirium, hallucinations, and paranoid or catatonic conditions are seen. Such reactions are also seen after the fever has subsided. Hallucinations and the paranoid forms would seem apt to follow malarial treatment. In purely tabetic cases, multiple sclerosis, post-encephalitic Parkinson syndrome, and epilepsy, these conditions are not so marked; indicating that they depend largely on the diffuse cerebral paralysis and taboparalytic processes, to which the toxoinfection of malaria is added. Malaria treatment has been used with caution by surgeons of the United States Navy. Stephenson and Love¹⁰ have reported favorable clinical results following its use. They conclude that elevation of temperature is responsible for the improvement in clinical manifestations. However, the question arises as to the advisability of superimposing one debilitating disease upon another and expecting no deleterious sequelae.

Carpenter and Boak,¹¹ in the *American Journal of Syphilis*, describe an apparatus and method of heating animals by short radio waves. Twenty-one of a group of twenty-five rabbits infected intratesticularly with *Treponema pallidum* and heated as described in the technique given, failed to develop chancres when treatments were begun

four, five, and seven days after injection. Five of these twenty-one rabbits developed nodules in their testes during the treatment, but by intensifying the exposure the lesions disappeared. One treated rabbit developed a chancre, while the testes of the second became enlarged, edematous and indurated. By increasing the duration of the heatings they became normal. One rabbit died from overheating and one died from intercurrent infection. Eighteen of twenty controlled rabbits similarly infected developed typical lesions of experimental syphilis; two died three days after infection, of peritonitis.

In March 1930, therapeutic fever produced by diathermy and high frequency currents was introduced by King and Cocke.¹² With special reference to its application in the treatment of general paralysis, the method used by King and Cocke has been followed very closely by us.

TREATMENT OF WASSERMANN-FAST CASES

A careful history of the patient's previous medication is taken. Following Ehrlich's¹³ observations of the cause of Wassermann-fast cases, naturally a spirocheticide which has not previously been used is selected. Usually all cases will give a history of having had an intensive course of arsenical treatment. For instance, if neoarsphenamin and mercury have been employed, our drugs of choice would be intravenous bismuth and iodine. The following routine has been adopted, which has given excellent results: Three injections of one gram sodium thiosulphate are given intravenously at twenty-four hour intervals. This drug is used in an attempt to dislodge or absorb any arsenic that may be stored, and prepare the system to receive the attack against the spirochetes from a different angle. Nonmetallic sulphur in the form of sodium thiosulphate¹⁴ precipitates the whole group of metals, *i. e.*, arsenic, lead, mercury, zinc, copper, and bismuth. In doses up to two grams intravenously the chemical action is rapid, converting metals into insoluble sulphids which are nontoxic.

DIATHERMY

After a thorough preparation, the patient receives five cubic centimeters of Loesser's intravenous bismuth, which is followed by a diathermy treatment* described below:

A rubber sheet, approximately four by seven feet, and having a rubber tube vulcanized in its center, is placed on an ordinary hospital bed (no other insulation is needed). The tube is led to a bottle placed beneath the bed as a drain for perspiration. The patient is stripped, placed on the rubber sheet, and two electrodes (eight by fourteen inches with one side insulated with one-fourth inch sponge rubber) are placed under the buttocks and shoulder blades. Two similar electrodes are placed over the abdomen and chest. The two lower electrodes are connected to one

* Through the courtesy of the manufacturers and distributors of physiotherapy products, the writer had the use of six diathermy machines for a period of four months.

lead of a high frequency diathermy machine and the two upper electrodes are attached to the other lead. A rubber sheet and two heavy blankets are then placed over the patient and tucked in snugly, leaving only the face exposed. The current is turned on with the milliamperage reading at 2000 and gradually increased until the reading reaches 4500 to 5000 milliamperes.

Temperature and pulse rate are taken every fifteen minutes. It usually requires about one hour, with a gradual increase, before it is safe to expose the patient to such a high frequency. Generally, after the lapse of an hour and one-half to two hours, the patient has attained a temperature of 102 to 103 degrees Fahrenheit. Irritable subjects are given a hypodermic of one-quarter grain of morphin sulphate early in the procedure. This is generally conducive to drowsiness and sleep.

For the sake of safety, the pulse rate should not be allowed to exceed 130 beats to a minute. Any irregularity of the pulse, air hunger, extreme nervousness, sudden dilatation of the pupils, and absence of sweating, are the first signs of danger. Blood pressure readings are inconvenient to make and are unnecessary because the other symptoms will always precede an alarming fall in blood pressure.

In treating Wassermann-fast cases we rarely create a therapeutic temperature higher than 103 degrees Fahrenheit, and usually limit them to two-hour intervals of diathermy exposure.

Forty-eight hours later, ten cubic centimeters of Burnham's intravenous iodine is given, which is also followed by a diathermy treatment. The first course consists of ten or twelve of the above alternating treatments, according to the capacity of the patient to assimilate the bismuth, iodine, and diathermy treatments, respectively. Serological readings at the end of this treatment always shows a decided improvement.

CEREBROSPINAL AND NEUROSYPHILIS

So much has been written and the disease has been attacked from so many angles that it would be impractical to quote a consensus of opinion. Therapy becomes a distinctly different problem during later stages of the infection, when spirochetes have been localized in parts of the body that are therapeutically inaccessible to the ordinary spirocheticidal agent. When the factor of resistance comes into play and the course of the disease is determined largely by the resistance of the individual, therapeutic fever is of proven value. Treatment becomes a question of reaching inaccessible foci of infection, and this might be done either by the use of spirocheticidal agents or by the use of agents whose primary function is to reinforce the resistance of the patient, or, better still, by the use of substances that combine both of these qualities of action.

After many experiments with various drugs and methods, the following routine has been adopted:

A careful physical examination is made, including blood and spinal Kahn tests, cell count, colloidal gold curve, globulin, blood pressure, and an attempt to estimate the physical resistance of the patient. The field of vision of each patient is taken and recorded. The patient is then given three grams of tryparsamid intravenously and then diathermy treatment is administered as described above, except that the therapeutic temperature is elevated to 104 degrees Fahrenheit and kept there for a period of two hours, which makes the treatment continue from three and one-half to four hours. Forty-eight hours later, five cubic centimeters of Loesser's bismuth is given intravenously, which is followed by another therapeutic fever treatment. Forty-eight hours later, ten cubic centimeters of Burnham's iodine is injected intravenously, which is also followed by a therapeutic fever treatment. This same routine is continued for four weeks or longer, unless contraindicated. The field of vision test is made prior to each injection of tryparsamid. If there is an indication of a contraction of the field of vision, tryparsamid should be discontinued. Any simple clinical test for the field of vision will suffice and tryparsamid can be discontinued before permanent damage has resulted.

RESULTS OF TREATMENT

A total of ninety-three patients were treated, twenty of which gave a positive spinal Kahn test and are classed as cerebrospinal; the remaining seventy-three were Wassermann- or Kahn-fast cases.

Seventy-three patients were treated (Wassermann-fast). Thirty-three gave a four plus serum reaction before treatment was started, and twenty of these gave a negative Kahn blood and spinal after the treatment was completed. The remaining thirteen gave a two plus Kahn after receiving the average number of treatments. Twenty-nine patients showed a three plus Kahn before treatment started, and a negative Kahn blood and spinal after the treatment was completed. Eleven patients showed a two plus blood Kahn before the treatment was started, and the blood Kahn was negative after treatment was completed.

Of the twenty cerebrospinal patients treated, one had a severe ocular disturbance and did not complete the treatment. Five exhibited mild visual disturbances, but not of sufficient severity to warrant discontinuing tryparsamid treatment. The only clinical manifestation of the cerebrospinal patients was a contraction of the field of vision without any apparent damage to the optic nerve. One of this series is a semi-invalid (treatment started after the development of hemi-

TABLE 1.—Treatment Chart

Type of Case	Blood Kahn		Spinal Fluid Kahn		Pandy's Test		Cell Count		Number of Treatments				Results	
	Before Treat.	After Treat.	Before Treat.	After Treat.	Before Treat.	After Treat.	Before Treat.	After Treat.	Thera- peutic Fever	Trypars- amid	Iodin	Bismuth	Clinical Manifes- tations	Visual Disturb- ances
Cerebro- spinal Syphilis Case Numbers	2 plus	Neg.	4 plus	Negative	4 plus	1 plus	65	10	15	7	8	6	D. A., S. I.	Mild
	Neg.	Neg.	2 plus	Negative	2 plus	Neg.	22	7	12	6	9	8	D. A., S. I.	None
	3 plus	Neg.	4 plus	1 plus	4 plus	1 plus	72	15	14	7	8	9	Some Imp.	Mild
	2 plus	Neg.	3 plus	Negative	4 plus	2 plus	32	11	11	8	10	8	D. A., S. I.	Mild
	Neg.	Neg.	4 plus	2 plus	4 plus	2 plus	48	20	16	8	7	8	Some Imp.	Mild
	Neg.	Neg.	4 plus	Negative	2 plus	Neg.	16	9	12	6	8	8	Some Imp.	None
	4 plus	Neg.	3 plus	1 plus	4 plus	1 plus	50	15	16	8	10	8	Much Imp.	None
	3 plus	Neg.	2 plus	Negative	2 plus	2 plus	16	5	8	4	7	8	D. A., S. I.	None
	1 plus	Neg.	2 plus	2 plus	2 plus	1 plus	19	7	10	5	9	8	Some Imp.	None
	Neg.	Neg.	2 plus	Negative	1 plus	Neg.	10	5	16	8	2	10	D. A., S. I.	None
Individual Cases	2 plus	Not made	3 plus	Not made	3 plus	Not made	22	Not made	5	3	2	2	Did not finish	Severe
	Neg.	Neg.	4 plus	1 plus	4 plus	Neg.	36	7	15	9	8	7	Some Imp.	None
	Neg.	Neg.	2 plus	Negative	3 plus	Neg.	20	5	15	8	7	7	Some Imp.	None
	3 plus	Neg.	4 plus	1 plus	4 plus	1 plus	60	10	16	9	15	12	Some Imp.	Mild
	Neg.	Neg.	2 plus	Negative	3 plus	Neg.	30	5	14	8	7	9	D. A., S. I.	None
	2 plus	Neg.	4 plus	Negative	4 plus	2 plus	42	15	18	10	9	9	D. A., S. I.	None
	4 plus	Neg.	3 plus	2 plus	4 plus	2 plus	65	25	17	11	10	8	Some Imp.	Mild
	Neg.	Neg.	3 plus	Negative	3 plus	1 plus	32	10	15	12	9	15	Some Imp.	None
	1 plus	Neg.	2 plus	Negative	2 plus	2 plus	20	5	8	12	8	9	D. A., S. I.	None
	Neg.	Neg.	3 plus	1 plus	4 plus	2 plus	19	7	10	10	7	11	Some Imp.	None
Kahn Fast Cases	4 plus	Neg.	Negative	.....	Neg.	.....	5	.....	12	.....	16	14	Much Imp.	.....
	4 plus	2 plus	.....	.....	.....	.....	6-7	.....	12	.....	16	14	Much Imp.	.....
	3 plus	Neg.	Negative	.....	Neg.	.....	Av. 7	.....	Av. 14	.....	Av. 18	Av. 16	Much Imp.	.....
Case Numbers	20	.....	.....	.....	.....	.....	.....	.....	Av. 11	.....	Av. 16	Av. 16	Much Imp.	.....
.....	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Under Clinical Manifestations use: D. A., Disease Arrested; I, Improved; N. I., Not Improved; S. I., Slight Improvement; and Dis. Discontinued.
Under Visual Disturbances use: Some, None or Mild as the case may require.
Note: Kahn positive spinal cases are classified as cerebrospinal Syphilis.

plegia, motor asphasia, and mental disturbances); there has been a remarkable improvement in his general health, as well as his mental activity and optimistic attitude. His colloidal gold curve has changed from tabetic to a luetic. He is able to walk, dress himself, and come unassisted to the naval station for his treatments. In twelve patients the disease has apparently been arrested and they have resumed their former occupations and earning capacity. All patients treated were ambulatory. It has not been necessary to hospitalize any patient as a result of treatment. Two patients have been discharged from the naval service and no further observations were available.

This series may seem comparatively small. However, each patient referred to represents a special case in which the ordinary methods of treatment had not proven satisfactory. The improvement in clinical manifestations and serological reactions, together with the change from a pessimistic to an optimistic mental attitude, is typical of every patient who completed a full course of treatment. Having had an unusual opportunity to study syphilis in many of its phases, the writer has never used, nor observed, a method so uniformly satisfactory in the treatment of tertiary lues.

CONCLUSIONS

1. If given slowly, with a small bore needle, bismuth and iodine can be administered intravenously with safety.

2. Tryparsamid can be administered with safety if frequent ocular examinations are made. Its

selective action on nervous tissues renders it more useful in the treatment of cerebrospinal syphilis than other arsenical preparations.

3. Wassermann-fast patients which have been resistant to the usual methods of treatment have shown a marked improvement under the combined treatment of intravenous bismuth and iodine, in conjunction with diathermy.

4. Therapeutic fever created by diathermy is considered superior to malaria treatment in that the fever can be controlled. No serious sequelae have followed its use in selected cases.

5. The combined treatment of tryparsamid, iodine and bismuth intravenously, in conjunction with therapeutic fever created by diathermy, has produced remarkable results. Physical improvement and mental activity have given these patients an optimistic outlook on life and has helped to transform them from potential public charges to useful citizens.

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VISUAL REQUIREMENTS FOR AUTOMOBILE DRIVERS

By MORIE F. WEYMANN, M. D.

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THE ever-increasing number of automobile accidents in this country and others has attracted the attention of workers in all fields who have studied the problem with the hope of being able to offer suggestions for its reduction. Among those responsible for the regulations affecting automobile drivers should be the oculists, as good vision is a particularly necessary quality for the proper conduction of a motor-driven vehicle.

While it is true that factors such as fatigue, the emotional make-up of an individual, his state of mind, and the condition of the weather are of great importance in the causation of accidents, it would seem that under otherwise similar conditions a person with good vision would be less likely to have an accident than one not possessing it. Of course, the argument has been advanced that a person who is afflicted with poor vision is made more cautious by the knowledge of his shortcomings, but we who practice medicine and who too often see people eat food which they know will make them ill, are not tempted to believe that the care exercised by an unfit driver would offset the danger caused by the defect. To most oculists the obvious conclusion is that regulation of automobile drivers with regard to their visual acuity would be desirable, but the manner in which to determine this is difficult to decide. Germany and certain other countries have a compulsory medical examination, which would have to be repeated every few years, and therefore would hardly be practicable in this country on account of the great number of drivers.

REPLIES TO A STATE QUESTIONNAIRE

A letter was sent to each state motor vehicle department this year by the writer to ascertain just what steps had already been taken to work out this problem in the United States. Answers were received from forty-five states. Of this number the following thirty-three had no visual requirements for nonprofessional drivers: Arizona, Arkansas, Colorado, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Mexico, Ohio, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Utah, Virginia, Washington, Wisconsin, and Wyoming.

Visual Acuity.—The state of Delaware has the most stringent requirement of a visual acuity of 20/30 in both eyes, or 20/20 in one eye. Vermont and Pennsylvania both demand 20/70 with both eyes, while Connecticut asks 20/70 in each eye, and Rhode Island 20/70 in one eye. New Jersey requires 20/50 in each eye, while California only requires 20/50 with both eyes. The attempt

was first made in California to demand 20/30 with both eyes but so many drivers were thus excluded that the limit was lowered to 20/50. In New York a driver must have 20/40 vision with both eyes together. In Washington, D. C., the officials merely stated that acuity and color vision are tested, without giving details. In West Virginia the applicant is only asked if his sight is good.

Visual Fields.—We meet the first mention of fields in the requirement of Massachusetts and Maryland. The former demands 20/70 vision with both eyes, a 120-degree field, and recognition of red, green, and yellow colors. Maryland asks 20/70 vision in each eye, or if one has less than 20/70, the other must have 20/40. A one-eyed individual may drive if he has 20/30 vision and has his car equipped with suitable mirrors. California is also contemplating the introduction of a visual field test.

A digression is made here to quote verbatim from the letter from the Maryland authorities in order to point out the necessity for oculists to take an interest in this work. It runs as follows: "Each rejected applicant *must* go to an *optometrist* of his own choosing." The italics are the writer's, but the quotation is exact. No doubt the expression "optometrist" was meant to include "oculists," but our state officials should be informed as to the limitations of that term.

EUROPEAN STANDARDS

This problem of the visual examination of automobile drivers was discussed at the Thirteenth International Congress of Ophthalmology at Amsterdam. Professor Weekers of Liege presented a set of requirements which have been more or less approved by those interested in the subject and which seem to be quite reasonable. These were as follows:

1. Visual acuity, after correction, of at least 20/40 in one eye, and 20/200 in the other. If a person blind in one eye has been so for at least one year and has a visual acuity of 20/25 in the other he is acceptable.

2. Normal visual field in one eye.

3. No diplopia.

4. No marked diminution in light sense.

I should personally be in favor of making the lower limit of the better eye 20/50, where the field of vision is normal. Otherwise, these figures as presented by Weekers seem entirely adequate.

It is quite obvious that a normal or nearly normal field is quite important in the conduction of an automobile, and the examination of the light sense cannot be omitted if one wishes to reduce the accidents occurring after nightfall. A hemeralopic individual is a dangerous driver at night and may not realize himself what his condition is.

A one-eyed individual should be capable of driving after he has become accustomed to his defect, provided he has normal vision and field in his single eye. Weekers reports four accidents involving one-eyed individuals in his locality and

himself is not in favor of licensing them, but states that the majority of opinion is against him.

PROPOSED PLAN FOR EXAMINATIONS

The plan proposed by several workers in this field, including Weekers and Patry, to put these requirements into effect is one which could be applied in this country.

When a driver applies for a license, he is given a copy of the visual requirements. I would also suggest that he have access at this time to a plainly marked test chart so that he could test his own visual acuity. Now, if he so desires, he can go to his oculist and assure himself that he meets these requirements. Whether he does this or not he must sign an application, stating that he believes that he meets the visual requirements as outlined. He agrees to submit to a medical examination if he is involved in an accident. If at this time he is found to be lacking in any of the requirements, he is to lose his license to drive. He thus also lays himself open to civil suit in admitting his defect. Patry would only have him lose his license if he were responsible for the accident. But it would be simpler to revoke the license of any defective individual even involved in an accident, as the responsibility is often difficult to place.

A clause in the application favored by Patry permits the applicant to drive even though he knows he does not meet the requirements, and this cautions him to be careful as he will lose his license if involved in an accident. If the requirements are as low as 20/50 in the poorer eye, I do not think it advisable to encourage those who cannot meet them to drive, even if they use extreme care. I think rather it should be impressed upon those not meeting the requirements that they should not drive, and the legal penalty for one found involved in and responsible for an accident who cannot pass the requirements should be a loss of his license to drive as a minimum penalty, with a maximum penalty of a jail sentence. Otherwise many drivers not meeting the requirements would take a chance.

The fact that the oculist would not have to sign a paper to get his patient a license would prevent him from being imposed upon to falsely certify as to drivers' visions, particularly of drivers who were his friends. He could tell them the truth as to whether they met the requirements or not, and the responsibility of their driving would then rest entirely upon their own shoulders. And that is where it rightfully belongs.

The medical requirements other than ocular could be arranged in like manner. The placing of the responsibility for knowing his condition upon the driver's shoulders would tend to make him more careful. Should a driver not meeting the requirements attempt to drive anyhow, he would be doubly careful, as the loss of a driver's permit is a serious matter in this day of automobiles.

SUMMARY

From a survey of the figures obtained from forty-five of these United States one can readily

see that there is much room for improvement in the system now used, and that there is a crying need for some uniform visual requirements for drivers of automobiles. The writer would urge the adoption of Professor Weekers' suggestions, modified to a lower limit of 20/50 in the better eye, with a type of enforcement placing the responsibility for knowing his eligibility upon the driver himself.

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GONORRHEA IN THE FEMALE*

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DISCUSSION by H. G. Mehrtens, M. D., San Francisco; William Henry Gilbert, M. D., Los Angeles; R. Glenn Craig, M. D., San Francisco.

THE treatment of gonorrhea in the female is assuming a far more dignified place in the interest of the gynecologist than was formerly the case. With the pendulum swinging more and more toward conservatism, the major destructive procedures of the past are being replaced by measures which will preserve the generative organs.

The problem of gonorrhea is an old one, but nevertheless of great importance, involving as it does, the generative functions and threatening the future health of the individual. The disease is the greatest cause of sterility and in the past has been responsible for most of the pelvic surgery in women. There is no doubt that the present treatment of gonorrhea in women is far too radical, and it is time that less destructive procedures be instituted even by those of us who consider ourselves conservative.

SOME STATE AND CITY METHODS

Statistics compiled from the records of the California State Board of Health, for the past nine years, show an average decline in the relative number of cases reported, considering the increase in population. However, the state board figures do not represent the total number of cases of gonorrhea, because 95 per cent of those reported come from the free clinics in California cities. The figures, however, indicate a decline in the incidence of the disease.

If every case of gonorrhea were reported by private physicians, figures would be obtained which would increase our knowledge in regard to the incidence of the disease, indicate spots of increased prevalence in certain sections as well as greatly facilitate the working out of methods in prevention and control.

In the regulations of the California State Board of Health for the prevention of venereal disease, as adopted on October 6, 1917, Rule 1, Note 3, states:

Any person in attendance on a case of syphilis or gonococcus infection who fails to report the case

promptly to the local health officer is guilty of a misdemeanor, punishable by a fine of not less than \$25 nor more than \$500, or by imprisonment for a term of not more than ninety days, or by both such fine and imprisonment.

The diagnosis of these cases must be verified by smear or serological tests made by a reliable laboratory.

In San Francisco the handling of infectious cases by the city authorities consists in arresting prostitutes—clandestine or otherwise—who are caught plying their trade, or upon the complaint of some individual who claimed to have acquired venereal disease from one such. These individuals are examined at the city jail by a physician and if found to be infected they are sent to the locked ward at San Francisco Hospital and are there treated until three negative smears are returned from the city laboratory. The approximate yearly turnover of patients is two hundred inmates and their average length of time in the hospital is about six weeks. Practically all of the present methods of treatment are employed, but the general trend is toward conservatism.

In certain of our western cities, routine examinations are made of employees of establishments such as restaurants and bakeries, and forced treatment is instituted on employees who have venereal diseases.

PATHOLOGY

The pathology of gonorrhea in women shows itself in an infection of the glands of the cervix, in an infection of the urethra, and less frequently in an infection of the Bartholin's glands. From the cervix the infection travels internally, involving the endometrium, fallopian tubes, and ovaries. In addition to these organs, the cellular tissue, the so-called parametrial, pararectal, and paravesicle tissues are invaded by the gonococcus. There is a marked tendency for the gonococcus to disappear from the tissues spontaneously, and this tendency is more marked in the tissues of the pelvis than from the glandular structures of the cervix and vulva. It is the infection persisting for long periods of time in the urethra and cervix which keeps the internal infection going with the well-known flare-ups during menstruation.

Curtis¹ has shown the importance of reinfection in the cured cervix as a very important element of these so-called flare-ups. Curtis has proven beyond any doubt that the infection is an ascending one from the cervix through the uterine cavity and into the fallopian tubes. He has shown by his ground specimens that gonorrhea can be found in the uterine mucosa in spite of the fact that this is a nonmotile organism which finds its way over a ciliated field against the cilia current.

The writer believes, however, that the pathway over the endometrium is not the only method of access which the gonococcus has to the cellular structures of the pelvic organs. When you consider the rich lymphatic supply of the whole uterine wall and cervix, the path by which most

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

infections of our body gain access, the tenderness of the sacro-uterine condensation and the speed with which some infections penetrate, it seems reasonable to think that at least some of the infection travels internally through the lymphatics.

TREATMENT

In the treatment of gonorrhea in the female, several things must be taken into consideration. In the first place, the acute or so-called "hot" case with internal extension, no matter how extensive, must be treated by rest in bed and measures designed merely for the comfort of the patient. As the acute inflammatory process subsides, a more careful examination can be done; the foci, that is, the glandular structures of the vulva and cervix may be investigated and plans formulated for further treatment. If tubal abscesses form, they may be drained, usually by posterior colpotomy. If the patient has had previous pelvic surgery, conditions are sometimes present which prevent the tubal abscess from pointing into the culdesac, making it difficult to drain from below. In this case it is a simple thing to drain the abscess through oblique incisions through the abdominal wall and from thence through the areolar tissue of the broad ligaments, without soiling the peritoneum.

When the acute inflammatory reaction shows further evidence of subsidence, by relatively normal temperature, lack of temperature reaction following examination, delayed sedimentation time or marked reduction in leukocytosis, treatment designed at destroying the external foci may be investigated.

Treatment of the Cervix Uteri.—The method of the treatment of the cervix may be either destructive or otherwise. The destructive methods consist in cauterization of the endocervical glands, in radiation, or the enucleation operation of Sturmdorf. In the nondestructive treatment, we have local applications of drugs, the injection of germicidal dyes beneath the cervical mucosa, and endocervical diathermy.

In regard to the *cautery*, there seems to be a wide diversion of opinion as to just how it is to be used, and an examination of the literature would indicate that there is some confusion as to just what is to be accomplished. The rationale of cautery use lies entirely in its ability to destroy the glandular lining of the cervix. If this can be done completely, there is every reason to expect a complete cure of the primary focus which acts as a feeder for the internal extension of the inflammatory disease. It is not necessary to dilate the cervix to do this procedure, if the cautery knife is not too bulky. A cautery should be chosen with a point presumably the ordinary length of the cervical canal. It should be capable of high heat on its point and have a cool shank. It should be inserted in the cervical canal completely cold, as this facilitates the placing of the instrument without searing and sticking before complete entry. When the knife is in proper position in the canal, the high heat should be

turned on immediately. Then, without moving the cautery, pressure is made in the direction of several radii for such a length of time (time must be learned from individual experience) that the destruction will reach a depth at least equal to that of the mucosa, this depth usually varying from two to five millimeters. The cautery is quickly removed, and in the withdrawal radial stripes are made on the vaginal portion of the cervix if there is marked eversion or cystic degeneration.

The operative procedure just described should be done in a hospital and under anesthesia. Light cauterizations are of no value in the treatment of infections of the endocervical glands for multiple cauterizations are not desirable. Operations such as that in which the cervix is split transversely, the two lips everted and the exposed canal cauterized, offer no improvement over the above described method. The deformity of the cervix in patients who are thus treated, and who are not cured of their infections, gives great mechanical difficulty in later treatment.

The after-treatment of a cauterization operation is rest in bed, the patient being sent home on the third day if the temperature is normal. She is advised to use a cleansing daily douche and is told to avoid exercise. She is also warned that her discharge will probably become much worse and very foul for a time, and that when the slough comes away there will be bleeding.

A *Sturmdorf tracheloplasty* may be done with the usual technique and the entire area which contains infected glands may be removed. This operation has the weakness inherent to all operations designed to eradicate diseased areas of microscopic dimensions. The plastic results of this operation are beautiful, but if future pregnancy is a consideration it had best not be done; because the enucleation usually must be done so deeply that there is too much interference with the neuromuscular activity of the uterus. Future pregnancies will be prevented in such patients or will terminate early in too large a percentage of cases. The technique of this operation can be applied to amputation with excellent anatomical results, and where enucleation might be done it would perhaps be better that amputation be done, using the same technique at a higher level.

In the treatment of endocervical infection by *radium*, the technique is quite simple and the results are probably as good as from cauterization procedures. About four years ago the writer compiled the reports on a series of fifty-seven patients having endocervicitis and of these, 10.5 per cent had cervical smears positive for gonococcus. Each patient received about 200 milligrams of practically unscreened radium in the cervix. This treatment was carried out in the out-patient clinic, and the results showed a complete cure or improvement in 57.2 per cent of patients. No stenosis following the use of radium has been noted by the writer in a period of four years. Patients suffered no pain. In our pro-

cedure, the capsule containing the radium is an integral part of one branch of a double tenaculum. The tenaculum was inserted in the cervix by sight so the capsule lay in the canal and, when the tenaculum was closed, the cervical lip was caught in the teeth of the tenaculum and the patient remained in a recumbent position for the desired length of time. We used 100 milligrams of radium, and it was usually left in place two hours. Lately this dosage has been increased and a rubber capsule screen has been added with the idea of inducing a temporary amenorrhea in patients who show a monthly flare-up.

The idea was brought out by Polak,² who is using temporary x-ray castration in the treatment of subacute adnexal inflammation.

The above methods are destructive and as such cannot be termed as ideal.

In the *nondestructive methods*, local applications will be dismissed as of no proved value. Sections taken from cervixes which have been removed after a liberal application of practically every drug have shown that the treatment is ineffective.

In the injection of mercurochrome the writer has had no experience, but following the technique of Helvestine and Farmer³ the mucosa of cervixes have been infiltrated after total removal. To properly inject the entire area is quite difficult.

Under treatment by endocervical diathermy, recent infections of the cervix by the gonococcus disappear quite miraculously at times, especially in patients who do not develop the severe uterine cramps. If powerful uterine cramps are initiated, there is considerable danger of flare-up of internal inflammatory reaction following this treatment. It is important that the physician remember that the heat registered by the thermometer in the thermophore relates only to the tissue immediately adjacent to the tip of the instrument, being quickly dissipated by the circulation.

Infections of the urethra may be cleared up easily with the Corbus thermophore or they may be destroyed with the fine eye cautery, used through the Moore skeneoscope. The glands may occur in more than a single pair and these must be located and destroyed. Here, as in the cervix, if the gonococcus is killed in the meatus by diathermy, it is probable that the adjacent field is infected, so that reinfection is probable unless the parts are kept clean.

Infected Bartholin's glands can be treated by excision of the glands without rupture, the incision being made in the labia and not in the vestibule. The glandular orifice should be cauterized with a fine cautery.

The above described methods of dealing with gonococcus infection will give a high percentage of local cures. With a local cure established, the internal pathology will very often completely disappear. Poorest results are found in patients who have had previous pelvic laparotomies of the so-called conservative type.

Turning now to newer and more conservative measures in the treatment of gonorrheal inflam-

matory disease, favorable reference may be made to the so-called protein shock or nonspecific protein therapy. It is not unusual to see large inflammatory masses disappear when this therapy is administered in the hospital. The results in our patients were about the same, no matter what protein was used and seemed somewhat proportional to the general reaction or the height of fever caused by the injection. Milk can be used as it is cheap and gives effective results. The effects of protein therapy seem to be more marked on the internal pathology than on the external, so that the protein shock therapy may be used in combination with previously outlined measures.

Therapeutic Fever Treatment.—Following Mehrten's⁴ work on high fevers produced by baths, the possibility of using some such method in the treatment of gonorrhea suggested itself. Mehrten's technique was used in nineteen patients, all of whom had positive smears before treatment or were unmistakably gonorrheal. A number of the patients were those recovering from their first attack of gonorrhea.

Mehrten's method is definitely a hospital treatment. The patients are immersed in a complete bath, usually at a temperature of between 108 and 110 degrees Fahrenheit. Blood pressure is taken before treatment. No hypotension patients have been immersed so far. The temperature of the bath water and the patient's pulse rate and temperature are taken and recorded every five minutes. The patient may have plenty of hot water to drink during the bath and for those who develop headaches an ice-cap is placed on the head. The temperature rise as recorded by mouth thermometer is rapid, and in reasonably cooperative patients the temperature reaches about 107 degrees Fahrenheit during the first thirty minutes. The bath is continued, holding the patient's temperature as constant as possible for one hour as the total bath time. After removal from the tub the patient is wrapped in woolen blankets for another hour. The temperature subsides slowly if care is taken in the wrapping.

No other treatment is given these patients at any time during their disease, except that before each bath the vagina and vulva are thoroughly scrubbed with a green soap solution. The number of baths to be given each patient and the interval between baths is still a question but, naturally, must vary with each individual treated.

Patients with acute gonorrhea and extensive tubal involvement have been given a greater number of baths, have been kept in the hospital longer, and have had their baths given every alternate day.

Our experimental use of the method of therapeutic fever induced by the water bath began in August 1929 in the Stanford women's clinic. The total number of patients treated was nineteen. The highest temperature reached in any bath was 108.2 degrees Fahrenheit. The age of these patients varied between sixteen and fifty-four years, the average age being twenty-five. The number of baths given varied from two to seven, the average being three baths. The average stay in the hospital was four days. Four of these nineteen patients were pregnant. One patient who had been bleeding before any treatment was started aborted two weeks after completion

of the baths. One patient had a premature delivery of a stillborn fetus, three months after her bath treatment.

The average duration of the disease in this series of patients varied between one month and seven years, but most were recent infections, rarely running over three months' duration.

In twelve patients with internal pelvic inflammatory disease, six showed a moderate adnexal infection and six gave evidence of marked internal involvement. In one patient an abscess was definitely made out in the ovarian region.

In this series of patients the smears began to come back negative following the second baths, and several cervical smears became positive again during the following week. After a period of almost three months, seventeen patients were clinically and bacteriologically negative for gonorrhea of the external genitalia and showed marked improvement of the internal inflammatory disease. In the two remaining patients one could not be located; and one had a positive smear one month after treatment, which we believe was a reinfection.

One patient whose vagina and vulva were completely covered by condylomata accuminata, was completely cured of both her gonorrhea and the warts. Green-soap scrubbing undoubtedly contributed to this result.

Another patient exhibited joint fixation of the wrist, and her wrist movement increased after three baths to the extent of thirty degrees posteriorly and forty-five degrees anteriorly with almost complete flexion of this joint at the end of two and a half months.

CONCLUSIONS

The observations above presented lead us to believe that therapeutic fever therapy, keeping the external genitalia carefully cleansed, and rest in bed offer much in the way of treatment for gonorrheal pelvic inflammatory disease. The danger of reinfection which Curtis has pointed out is, in patients who are treated in this manner, much more likely to occur than in destructive forms of treatment. It is probable that in certain types of patients, namely, prostitutes, it would be better to destroy the external foci of infection and use the therapeutic fevers for the treatment of the internal pathology alone. The writer knows no other form of treatment of gonorrheal pelvic inflammatory disease which is so effective at the present time, and certainly we can now treat, conservatively, patients who have already been subjected to the so-called conservative surgical operations which have resisted our treatment in the past.*

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DISCUSSION

H. G. MEHRTENS, M. D. (Stanford University Hospital, San Francisco).—Doctor Pettit's work on gonorrhea in the female treated with hyperpyrexial baths opens up an entirely new field for therapeutic fevers produced by baths. Our own experience, consisting of the administration of over five thousand treatments, was concerned chiefly with diseases of the central nervous system.

Doctor Pettit does well to stress the point that this treatment can be properly given only in a hospital where a personnel trained in the giving of such baths is in constant attendance. In our series no deaths attributable to the treatment have occurred. We have found it necessary to individualize the treatment, and by so doing it has been possible to treat individuals with hypertension, and even with myocarditis. Of course, in each case the treatment was modified to the needs of the individual.

Doctor Pettit's highly successful results have shown that the advantages of fever therapy in gonorrhea are even more satisfactory than those we have obtained in the treatment of syphilis of the nervous system, and he is to be congratulated on applying to this great field such a useful therapeutic measure.



WILLIAM HENRY GILBERT, M. D. (746 Francisco Street, Los Angeles).—Doctor Pettit's paper upon gonorrhea in the female is timely. The subject is of tremendous importance to the patient and physician.

That the gonococcus spreads rapidly is an established fact; that it disappears spontaneously from the tissue is constantly demonstrated. This is especially true of the pelvis and is evidenced by the sterility of pus found in old tubes. The adnexa and peritoneal tissues may be clear of the disease, but it can at the same time be demonstrated in the cervix and vulva. Unquestionably, the disease spreads by continuity of tissue, but I believe it is also disseminated through the lymphatics. This is especially true of the fulminating type.

With these thoughts in mind, the stage of the disease should be definitely determined before instituting treatment. There is a vast difference in the treatment of the acute, subacute, and chronic stages of the disease. During the very acute, or hot stage, before the balance of immunity is reestablished, rest in bed and palliative measures offer the mode of treatment that can be most successfully applied. Surgical measures instituted against a green gonorrheal tube constitutes one of the great surgical mistakes, and should rarely, if ever, be undertaken. During this stage there is often involvement of the perimetrial, rectal, and vesical tissues, along with inflammation of the ovaries and tubes. The clinical picture then is so distressing that often it seems surgery is indicated and justified, but emphasis must be placed on the necessity for conservative treatment at that time. Rest in bed, ice-packs, protein therapy, and sedatives will yield a far greater percentage of cures at this time than surgery. After the fire has died down, other measures should be started.

I am satisfied that the therapeutic fever treatment as laid down by Doctor Pettit will afford a larger percentage of cures than any other method.

* The writer wishes to thank Dr. Paul Hoffman and Miss M. C. Baldwin for supervising the baths and for recording much of the data used in this report.

The treatment of the diseased cervix depends upon the extent and character of the infection. The cautery, in my hands, has yielded the best results. The Sturmdorf tracheloplasty is useful, but is inferior to surgical amputation. I have abandoned both procedures in favor of the cautery. Skene's glands are very difficult to cure; the cautery wire has been most serviceable. Bartholin glands when once infected are rarely entirely free of disease. Their complete extirpation without rupture through the labia offers a complete cure. The cure or removal of diseased Skene's and Bartholin glands will generally cure relapsing cases that have baffled other modes of treatment.

I am satisfied that protein therapy has a decided place in our armamentarium. This is especially true of diseased internal, rather than external, organs. It seems to exert little influence upon the diseased cervix or vulva. On the other hand, its action is quick and sure in many cases of acutely diseased uterine adnexa. Diathermy, in my hands, has not yielded the wonderful results other men have achieved. When it is used, great care must be exercised not to stir up a sleeping pelvic infection.

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R. GLENN CRAIG, M. D. (490 Post Street, San Francisco).—Doctor Pettit has offered us an entirely new method in the treatment of gonococcal infections in the female which, in his hands, has given most satisfactory results. It cannot be too strongly emphasized that this treatment is a hospital treatment which must be carried out under the constant observation of attendants who are accustomed to giving these hot baths. If the treatment is used under other conditions, fatalities may result. Doctor Pettit has made a step forward, but we should await his report on a larger series of patients.

I cannot agree with Doctor Pettit's statement that gonococcal infections are so often carried to the internal genitalia through the lymphatics. If this is true, I would like to ask why gonococcal salpingitis is not seen after supravaginal hysterectomies or when a sterilization has been done. I would like to ask if he has seen one such patient. Until the evidence is changed, I must continue to believe our old teaching, that gonococcal infections seldom spread up to the lymphatics.

COLIC IN INFANCY—IN THE SECOND TRIMESTER*

REPORT OF CASE

By A. J. SCOTT, M. D.
Los Angeles

DISCUSSION by T. C. McCleave, M. D., Oakland; Ernst Wolff, M. D., San Francisco; Donald K. Woods, M. D., San Diego.

COLIC in infants for the first three months of age is so common that many erroneously consider it physiological. But colic in older infants from three to six months is very uncommon and when it apparently occurs a very careful diagnosis is desirable. A careful history is absolutely essential. A complete physical examination with the infant stripped is necessary. Etiological factors which may come into action in the second trimester of the infant's life will be considered in turn.

ETIOLOGIC FACTORS

Indigestion.—Indigestion may be due either to a high fat or a high sugar content, or to food which is not suitable for that particular infant. The high percentage of fat found in certain milks may cause dry, constipated soap stools which are difficult to pass and at times give pain. Certain sugars, as milk sugar or dextrin malt preparations which are too high in maltose or glucose, as for example, corn sugar, may cause looseness of the stools, abdominal distension and cramps. Occasionally improper solid foods are fed even to an infant of this age. If so, that fact will usually be disclosed in the history. The reduction of the high fat milks and the use of the proper type of sugar usually brings prompt relief.

Angioneurotic Edema.—This condition is rare at this age and if the child has been on the same formula from the beginning without such a complication, then the condition need not be taken seriously. It is a possibility, however, which must not be overlooked in the history and examination of the infant, especially whenever there are urticarias or other signs of skin irritation. We must not forget that the breast-fed infant may have trouble from certain foods that the mother may eat, as noted by Shannon. Particular emphasis in such cases is seen in certain intractable eczemas. We must, however, be careful not to attribute the colic to the mother's diet until all other factors have been eliminated.

Cerebral Birth Injuries.—These may cause so much cortical irritation that a child, even at this age period, has definite spastic signs with more or less muscular rigidity, and an associated inability to properly care for the food. These infants cry a great deal and always seem in more or less distress, do not gain properly in weight or strength. The food is changed frequently as it may be thought that the food is the factor at fault, when, as a matter of fact, the trouble is primarily of a cerebral and not gastro-intestinal nature.

Some of these infants with cerebral birth injuries may not be particularly spastic but may be difficult feeders and have much gas. We have under observation one patient that has convulsions at varying intervals of from a week to a month, regardless of the care that is given to the preparation of its food. Blood calcium is within normal limits and gastro-intestinal studies with barium reveal no abnormalities and x-rays of the skull shows nothing abnormal. Infants such as this are the ones that are slow in their mental development, and at eighteen months usually are not able to sit, and seem many months retarded.

Certain Congenital Anomalies.—These are rather rare, but as found occasionally, include conditions such as strictures, adhesions, mesenteric cyst, with or without volvulus and Meckel's diverticulum with volvulus. The following case of Meckel's diverticulum is here reported.

* Read before the Pediatric Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

REPORT OF CASE

Baby F., male, referred by Dr. A. Hon, was first seen August 21, 1929, age $4\frac{1}{2}$ months, first child, instrumental delivery after slow labor. Birth weight, 8 pounds, 10 ounces. The child had been well up to the day before it came under observation. It had been breast fed every three hours. Bowel movements had been good until August 20, but were somewhat dry and lumpy. On this date it vomited but seemed to have no temperature. At 3 p. m. it started to whine and cry. The mother reported that for the preceding three weeks it would wake at night and fuss and seem to have abdominal gas. The mother had been on a fair diet with some restrictions. The infant had been given no laxative or enemas until August 20, and then with no results. When first seen on August 21 its temperature was 103. The infant was well nourished. It lay with its legs flexed and was very pallid. It had a hypospadias, but the testicles were down and there was no hernia. The heart and lungs were normal. The left membranatympani was pink and the throat was quite red. The abdomen was sensitive with slight rigidity, although it endured deep pressure without much flinching. The upper part of the abdomen was more full although no definite mass could be felt excepting around the umbilicus. On deep palpation its respiration became grunty. Its face had an anxious look. It vomited greenish brown material. The blood count was 17,800, with 60 per cent polynuclears and 32 per cent lymphocytes. It passed small mucoid stools tinged with some blood. A tentative diagnosis of intussusception was made and the infant was removed to the hospital where it was operated on under ether anesthesia by Dr. W. L. Huggins. Through a right rectus incision about 300 to 400 c.c. of blood fluid was evacuated from the abdominal cavity. A Meckel's diverticulum, containing about one ounce of fluid and attached underneath the navel, had caught a loop of bowel, twisting it and forming a complete block. The serous coating of the bowel was glossy and the color rapidly improved when relieved of the tension. The attachment of the diverticulum was divided and it was removed.

The child was returned to bed in good condition but the nurse quoted that in a few minutes his skin became pallid and a brown liquid ran from his nostrils. The infant died suddenly.

Pathological report: "Specimen is sac-like structure with narrow mouth, which is approximately 0.6 cm. in diameter. The whole specimen is approximately $4\frac{1}{2}$ cm. in diameter. Surface dark red and surface lined with this smooth blood-stained membrane. Diagnosis: Meckel's diverticulum."

No autopsy was permitted, consequently we were unable to determine whether there was any other cause for the sudden death, although from the condition of the child when it was sent to the operating room, we were of the opinion that shock was the principal cause of death.

Porter,¹ in his list of 184 patients, mentions twelve under seven months of age, and of these seven died and four recovered, one result not smooth. Walls infiltrated with hemorrhage. Inner being mentioned. Nine of these patients were under two months of age. There has been very little in the current literature on the subject. The mortality is higher than 50 per cent. It behooves us to be on special guard when a diagnosis is made of a surgical condition, in order to avoid delay that might be dangerous, as even in a few hours irreparable damage may be done.

Pyuria and Renal Colic.—For every infant an urinalysis should be made. An urinalysis is particularly indicated in infants where there is a history of so-called colic of short or long dura-

tion. The urine may show pus, with or without blood. There may be no history of change of temperature at such times, although usually where there is pus there is more or less temperature. This is particularly emphasized in cases of female infants, as they are more frequently affected with pyuria than male infants. Stone in the ureter or in the bladder must not be forgotten. Though rare, such cases occur. The microscopic examination of the urinary sediment will give the first definite lead when blood corpuscles are found. Further studies should be made in coöperation with a competent urologist.

The Neurotic Child with Nervous Parents.—Such an infant is apt to be thin, costive, overhanded, overwrapped. It may be fretful, irritable and may cry a great deal and be unable to properly digest food. It may have had varying degrees of colic until proper dietary and hygienic regimen are established. Such an infant may have had a poor start for frequently such a child may be denied its own mother's milk because the mother may think she is "too nervous." If such a mother does nurse the child it seems to be worse then when it is fed artificially. Such infants at times become serious problems in pediatric practice, and it is no easy task to manage the parents and the relatives so as to give the infant its proper chance.

Inflammation of the Ear and Mastoids.—Due to the work of Dean and Marriott, the attention of the medical world has been drawn to the relationship between the middle ear and mastoid infections and the gastro-intestinal tract. It is a common finding for an infant which has been doing well in the early months of life on breast feeding, or on a proper formula, to have, following a mild coryza, symptoms of indigestion, loose stools, colic and more or less temperature. Such infants are frequently given physic to get rid of the supposedly irritating food products, or the diet is changed, or perhaps they are starved and what not until they develop symptoms of dehydration and acidosis, ending often in death.

If the ears of such babies are carefully studied, definite changes in the color of the ear drum and a certain amount of sagging of the canal walls, particularly the posterior and superior, will be found, but no swelling or particular tenderness back of the ear. Repeated myringotomies release only a small amount of pus, if any. These cases show a marked improvement following a simple mastoidectomy, which must usually be bilateral. However, not all infants at this age with these symptoms of digestive upset require such radical procedures, but some may be markedly improved and even relieved of all their symptoms by a simple myringotomy.

Intussusception.—This complication is usually considered to be more common from 6 to 18 months of life. It may occur earlier and should be kept in mind as a possibility of colic. A report of a case follows:

Baby G., female, aged 6 months. The child was born at full term, birth weight 6 pounds, $12\frac{1}{2}$ ounces;

was breast fed every four hours for four months, then feedings were supplemented with artificial food. Infant did well, with normal bowel movements, until the morning of September 4, 1929, age at that time being six months. The mother telephoned that the child had awakened at 6 a. m., apparently with abdominal cramps, followed by one normal stool. Then, inasmuch as the cramps did not seem to abate, the mother gave an enema and got some bloody mucus. When the infant was seen at 10:30 a. m., it had a temperature of 99. A little mass was palpable in the median line on a level with the umbilicus, which seemed to be tender. The child was not in shock and five drops of 1/1000 atrophin every three or four hours were ordered and the child was left under close observation. At 2:30 p. m., it had a large bloody stool, the mass was still present, the lower right quadrant seemed empty. A diagnosis of intussusception was made and the child was operated on at 5 p. m., by Dr. George Ernsberger, who reduced an intussusception at the ileocecal valve, and also removed the appendix, which was about three inches long and acutely engorged. The child made an uneventful recovery.

Microscopic examination of the appendix: "Lining intact, areas of hemorrhagic extravasation. A few collection of leucocytes, many eosinophiles in mucosa. Lymphoid tissues hyperplastic, collection of round cells in subserous and mucous layers. Diagnosis: Chronic appendicitis with early acute inflammation."

The interesting point to speculate on here is: Was the acute inflammation of the chronic appendicitis responsible for the intussusception, or was the acute condition due to the strangulation?

Strangulated Hernia.—This condition must not be overlooked. Platou² notes a case of a female infant eight weeks old, with a strangulated left inguinal hernia, which was operated on with recovery. Some years ago we observed a male infant, six weeks old, which had a strangulated right inguinal hernia of about thirty-six hours duration, and which was operated upon and made an uneventful recovery. These two cases are in an age period younger than the one we have under discussion, but they are brought in to emphasize the fact that these conditions may be present and must not be overlooked.

SUMMARY

The fact that an infant is past three months of age and has symptoms suggestive of colic should make one watch for possible congenital abnormalities or intussusception. A painstaking history is of the greatest value. Likewise a thorough examination of the stripped child. The child should be carefully studied with particular reference to otoscopic examinations of the ears. The urine must be examined microscopically, to rule out pus or microscopic blood; and the abdomen must be palpated, particularly in the region of the umbilicus for any small mass or tumor, which, if present, usually is painful and causes the infant to cry out when manipulated. In the abdomen there is a suggestion of emptiness in the lower part. A bloody mucoid stool may be one of the signs.

The use of barium enemas and barium meal, and of fluoroscopy and x-ray plates is a waste of valuable time, if a diagnosis has been made of some abdominal condition requiring surgery, as

the exact or differential diagnosis is not so important as the fact that surgery is indicated. X-rays of mastoids at this age are not to be depended upon. The diagnosis should be made on clinical findings. The x-rays should be adjuvants.

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DISCUSSION

T. C. McCleave, M. D. (1904 Franklin Street, Oakland).—Dr. Scott's reference to congenital anomalies of the intestine as a possible cause of colic-like pain in infants is exemplified by a case seen by me of an infant some nine or ten months old who had a history of repeated attacks of apparently severe pain in the abdomen, the present attack of several days' duration. The baby, when seen, was in extremis, with fecal vomiting, a distended upper abdomen and a flat lower abdomen, a condition obviously indicative of intestinal obstruction. Operation revealed the cause of the obstruction to be a diverticulum which was inverted, incarcerated and gangrenous, the outer extremity of which was a disc of solid tissue shown later on by microscopical examination to be accessory pancreas tissue. Time was not taken to allow examination of the portion of intestine from which the diverticulum originated, owing to the baby's bad condition, and further examination was not permitted after death, which occurred shortly after operation. It was evident that the recurrent attacks of pain were caused by the repeated transient invagination of the diverticulum which acted like a ball-valve in the lumen of the gut; finally, however, spontaneous reduction failing to occur as heretofore, becoming incarcerated as a result of congestion and swelling.

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ERNST WOLFF, M. D. (516 Sutter Street, San Francisco).—Dr. Scott's paper has extraordinary merits in view of the many urgent problems connected with the proper diagnosis of acute gastro-intestinal disturbances in the second trimenon.

The case report of intussusception in a six months old baby is to me especially interesting on account of two features. These were duplicated in a case of intussusception in a three months old baby boy, whom I observed recently in private practice.

It is mentioned in most of the next books that bloody stools do not appear for six to seven hours after the intussusception has started. In Dr. Scott's case and in mine bloody mucus appeared in the second hour after the onset of abdominal pain.

The second coincidence is the finding of an acutely engorged and red appendix during the operation. The microscopic report pointing to chronic appendicitis with early acute inflammation seems to be strange when the tender age and the uneventful past history of the patient is taken into consideration.

There is the possibility that the term of hyperplastic lymphoid tissue may denote only a physiological condition of a young baby. As the appendix is situated very near to the ileocecal valve, which is ordinarily the site of the intussusception, strangulation may easily explain the pathology of the appendix in both cases.

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DONALD K. WOODS, M. D. (2545 Fourth Street, San Diego).—Dr. Scott's paper is valuable not so much because of the particular cases reported, but on ac-

count of the emphasis placed on the need of careful examination and definite diagnosis in recurrent attacks of so-called colic.

Colic, as he brings out, is usually caused by exacerbation of subacute conditions or recurring acute trouble. Also the underlying cause is often of a very serious nature.

One cause for recurrent colic which is rather frequent has not been discussed, namely, pylorospasm. This is encountered not infrequently. It may or may not be accompanied by vomiting. In some of the children a history of vomiting during the first three months is given, but not later. The attacks are intermittent and usually occur soon after feeding. X-ray will show a very slow emptying time for the stomach. The attacks are usually relieved by small doses of atropine before feeding, or in more severe cases by $\frac{1}{8}$ to $\frac{1}{4}$ grain doses of phenobarbital with or without atropine. It would be well to exclude pylorospasm in all cases of colic where the diagnosis is obscure.

However, I feel that, as stated before, the chief value of Dr. Scott's paper is to emphasize the fact that recurrent pain should be given the same searching clinical consideration in early childhood as would be given to similar symptoms in the case of an adult.



DOCTOR SCOTT (Closing).—I wish to thank the men who have discussed this paper. My object in bringing this before the section was to provoke discussion and remind us that there are other causes than food which may cause colic in infants past the first three months of life. We tell our students to strip the child, examine the ears and the urine. If these admonitions are heeded there should be fewer errors in diagnosis and fewer important points overlooked.

A PROFESSION WITH A SOUL*

By W. H. HOOD, M. D.
Reno, Nevada

GREAT has been the progress of medicine in the last century. Greater still has been the progress of our profession since the illustrious Lister applied the principle of Pasteur, scarcely two decades before the organization of the Pacific Association of Railway Surgeons some twenty-eight years ago. And even greater will be the progress in the days to come, for today in hundreds of laboratories there are thousands of investigators following in the footsteps of other pioneers, and to these future investigators honor will also be given, for through their efforts scientific medicine will continue to advance.

The clerical profession deplores today what it terms our material age, in which the chief aim in life is apparently the obtaining of wealth with which to gratify the body, without regard to those deeper pleasures of the mind or soul which money cannot buy. So the thought sometimes comes to me that, unmindful of the biblical injunction that "Man cannot live by bread alone," many in our profession may become so materialistic that they overlook the fact that our profession should possess a soul as well as a body—a soul that is over and above and which cannot be measured by the material scientist with his instruments of precision. Our service to humanity will be fuller if this soul element be not ignored.

Today there are many cults and systems of healing competing with scientific medicine. That such have many intelligent followers there is no denying. If they seem to their credulous followers to succeed, is it not perhaps, because they have capitalized an element that we have been too prone to neglect?

As I grow older in the practice of medicine, and in the experiences of life, I feel more and more the importance of this soul element in medicine. My thought to you today is that we, who from habit are concerned largely with the material elements of the body, may gain in value by keeping in mind this undefined soul which exists also in our patients as it is partly evidenced through the psychical element in disease. We all are familiar with the effects of a sick body on the mind, but we sometimes seem to forget that as great, or greater, are the effects of a sick mind on the body.

In our school days we were taught that a perfect bodily function depended upon healthy organs, upon a healthy supply of blood to these organs, and upon a healthy nerve supply to these organs. By nerve supply I do not visualize an inert wire that conducts an impulse, but the living battery that generates it.

As you well know, we have in the brain two sets of nerve centers: the upper nerve centers which have to do with thought, intelligence, will power, memory, and the like; and the lower subconscious or medullary centers, through which the upper nerve centers act. This is a wise provision of nature, universally observed. For example, when the student of music learns to play the piano every key that he strikes, every note that he sounds, is a conscious effort, and is followed with fatigue; but when, in time, by constant practice, he masters the instrument, with only the decision of the will to do, these lower centers act automatically and he plays even the most complicated compositions of the great masters without effort and without fatigue.

To apply this example, what happens in health or normal processes may also happen in sickness. In your own experiences you have seen how these subconscious centers act viciously, with symptoms continuing long after the cause of the illness is removed. These unfortunate patients need mental and not physical treatment. First of all let the physician make a complete examination, using the aid of all scientific tests, so that he can be sure of his position; for if the physician is not confident he is in no position to inspire confidence in the patient. With sympathy, then, assure the patient that his trouble is not imaginary but real. Then trace the progress of the illness from the beginning and illustrate how the subconscious center acts automatically in the ordinary pursuits of life. To obtain a cure it is necessary to re-educate the patient to bring this center into normal action. This cannot be done by an effort of the will power, for trying to do a thing expresses in itself an element of doubt of success, but it can

* President's address at the twenty-eighth annual session of the Pacific Association of Railway Surgeons, August 23, 1930, at Coronado, San Diego.

be done by cultivating an attitude of complete indifference, neither anticipating nor recalling the symptoms.

Doubtless many of you have had a similar experience to the one I am about to relate, an experience that started me on this line of thought. More than one-third of a century ago I was called to a little mining camp to attend a young girl with appendicitis. According to the standard treatment of the day, I purged her with free doses of Epsom salts, advising her to come to Battle Mountain (where I was then located) in two days for observation, with the possibility of sending her to San Francisco for an operation. The young lady came for observation and continued on to San Francisco. One of the famous surgeons there kept her under observation for another week, when he operated; but with the usual remark as often heard by country doctors, "You came just in time, another day would have been too late."

In a short time this emotional girl (we are all emotional) returned home in good health, and carrying as "Exhibit A" her appendix preserved in a bottle. Her mind or brain was filled with her new experiences—her operation, the first trip on the railroad train, her visit to San Francisco—experiences of which she talked continually. Her good health continued for several months, when she began to suffer with so-called gas pains and adhesions. As soon as finances could be arranged she renewed that wonderful experience—that trip to the hospital. Three times the operation for adhesions was repeated, each time with relief for a year or two, when the trouble would recur. But financial reverses prevented further operations and the suffering continued. After some years, report came that she was completely cured and became a useful member of society, a wife and mother. Inquiry revealed that the miracle was performed by the use of the "Ouija" board.

All of us at some time or another in our practice might recall similar experiences. We know that there is more than a scientific and materialistic side to medicine. We know that medicine has a soul.

I hope that you have been interested in my theme. I advance my theme, "A Profession with a Soul," in all sincerity, after a lifetime devoted to the active practice of medicine.[†] Many of you may be in hearty accord with me, others may disagree. I have one consolation, however. You remember, in the essay "Cicero De Senectute" the pleasures of old age and the bliss of the hereafter are depicted, the essayist adding that if he was in error concerning immortality he had one happy thought, that there would be none of his critics there to ridicule him. So, knowing that the president's address is not open to discussion, I am in the same favorable position, for if I am wrong in this my belief I am happy in the thought there is no one here who will be allowed to call me to task.

Farmers and Merchants National Bank Building.

OCULAR FINDINGS IN DIABETES*

COMMENT ON AN UNSELECTED GROUP OF
ADULT DIABETICS

By H. CLARE SHEPARDSON, M. D.

AND

JOSEPH WILLIAM CRAWFORD, M. D.
San Francisco

DISCUSSION by George Newton Hosford, M. D., San Francisco; M. F. Weymann, M. D., Los Angeles.

DISTURBANCES of the visual apparatus are associated more commonly with diabetes mellitus than with any other systemic disease, with the possible exception of arteriosclerosis. Since Edward Jaeger first noted the presence of retinitis in diabetics about seventy years ago, many studies of ophthalmic lesions associated with that disease have appeared in the literature. However, few of these studies have been sufficiently comprehensive to include all the abnormal ocular findings. Of even greater importance is the fact that sufficient effort rarely has been made to determine the extent to which diabetes is responsible etiologically for diseased conditions confined to the eye. If the ocular disturbances are to have diagnostic value, it must be shown conclusively that diabetes, rather than an associated condition, is the causative factor.

SCOPE OF THE STUDY

It therefore seemed advisable to undertake a detailed study of the eyes in a group of unselected adult diabetic patients for the purpose of determining the incidence of ocular complications. Sixty-eight patients were included, among whom twenty-four were males and forty-four were females. The ages varied from eighteen years to seventy-nine years, the average age being fifty-four years. The only patients excluded from the series were those with acromegaly and exophthalmic goiter. In addition to a detailed and complete examination of the eye, every effort was made to discover systemic complications which might be associated with the diabetes and be exercising a causative influence in the production of the ophthalmic findings.

The diagnosis of diabetes mellitus was based on the presence of glycosuria and a postprandial glycemia above 150 milligrams, or a fasting blood sugar above 120 milligrams per 100 cubic centimeters.

The highest blood sugar obtained during the period of observation in this clinic was .559 milligram per 100 cubic centimeters. Due consideration must be given the fact that in certain instances the diabetes was well controlled at the time of entry, so that the blood sugar shown does not offer a true criterion of the severity of

*From the departments of medicine and ophthalmology, University of California Medical School.

*Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

[†] Editor's Note.—Doctor Hood has the distinction of having been the first physician to receive a license to practice in Nevada.

the disease. For example, in Case 48 the highest blood sugar given is 171 milligrams. However, this patient was taking fifty-five units of insulin daily.

TABLE 1.—Summary of Clinical Laboratory and Ophthalmic Data Obtained in the Study of Sixty-eight Adult Diabetics

NO.	AGE	HIGHEST BL.SUG.	N.P.N.	U.A.	PHENOL	MOSENTHAL	WASS.	BL.	SYSTEMIC PR. COMPLICATIONS
1	53	.357	29.8	4.6	40%	1.010	-	185	As. R.I. Obese- ity.
2	71	.244	35.3	4.4	75%	1.026	-	115	As. R.I. Hyper- tension.
3	75	.421	36.9	4.4	55%	1.005	-	190	As. R.I. Obese- ity.
4	79	.256	Bl. urine	35%	75%	1.016	-	140	As. R.I.
5	51	.212	30.0	2.4	55%	1.010	-	160	None
6	45	.305	37.0	3.0	50%	1.009	-	140	As. Obesity. Pelvic pathol.
7	56	.203	40.0	2.4	60%	1.025	+++	144	As. R.I. Syph. Aortic insuff.
8	52	.332	40.0	3.4	65%	1.003	-	24	Aneurism
9	59	.179	44.8	3.6	40%	1.015	-	140	As. R.I. Obesity
10	68	.271	42.3	2.1	65%	1.007	-	150	As. R.I.
11	52	.439	30.9	4.1	65%	1.019	-	90	As. R.I. Obese- ity.
12	50	.288	34.9	4.8	65%	1.006	-	180	As. R.I. Obese- ity. Non tox. goi
13	56	.396	28.6	6.0	55%	1.017	-	95	As. R.I. Hemo- chromatosis.
14	55	.381	34.7	5.0	45%	1.012	-	200	As. R.I. Obesity. Cholecystitis.
15	63	.380	35.7	4.0	60%	1.021	-	90	As. R.I. Cholecys- titis. Cerebro- vasc. accident.
16	48	.297	29.1	2.6	40%	1.002	-	160	Diab. Neuritis.
17	49	.302	33.6	3.0	50%	1.006	-	96	As. Hemiplegia.
18	58	.367	25.9	3.3	65%	1.007	-	140	None
19	48	.235	38.5	3.7	28%	1.019	-	115	R.I. Pulmonary T.B.
20	34	.320	29.9	2.8	65%	1.022	-	128	Obesity. Cyeti- tis.
21	24	.203	42.8	2.8	60%	1.023	-	124	R.I.
22	69	.296	36.3	3.4	45%	1.008	-	126	As. Dermatitis.
23	66	.280	40.0	3.5	59%	1.015	-	66	As. R.I. Hyper- tension.
24	69	.240	37.5	3.0	64%	trace Alb.	-	240	As. Prostatitis
25	64	.340	44.4	2.7	65%	1.009	-	120	As. R.I. Obesity. Hypertension.
26	72	.350	46.1	2.9	49%	1.027	-	170	As. R.I. Arthri- tis.
27	56	.357	40.0	2.7	69%	1.009	-	140	As. R.I. Obesity. Hypertension.
28	56	.400	32.6	2.8	60%	1.012	++	210	As. R.I. Obesity. Hypertension.
29	60	.222	36.1	4.2	55%	1.010	-	136	Pulm. Emphysema. Syphilis.
30	43	.444	50.4	3.1	50%	1.022	-	00	As. R.I. Obesity. Pulm. T.B.
31	60	.303	41.4	3.8	65%	1.027	-	110	R.I.
32	58	.559	44.4	3.4	75%	1.009	-	110	As. R.I. Obesity. Hypertension.
33	64	.222	32.2	3.9	55%	1.030	-	192	Arthritis.
34	55	.381	28.0	3.9	50%	not done	-	90	As. R.I.
35	50	.482	28.6	3.8	55%	Alb. caste	-	126	As. R.I. Coma. Cardiac hyper- trophy.
36	25	.250	34.0	3.1	65%	1.012	-	280	As. R.I. Obesity. Hypertension.
37	55	.452	24.0	3.6	60%	1.027	-	140	As. R.I. Obesity. Hypertension.
38	47	.250	39.4	4.9	60%	1.024	-	130	Cholelithiasis.
39	29	.363	29.0	2.8	60%	1.002	-	130	R.I. Coma.
40	52	.460	30.8	2.8	50%	1.009	-	60	As.
41	66	.209	29.3	3.1	45%	1.007	+++	150	R.I. Obesity.
42	64	.242	28.0	3.2	65%	1.016	-	150	None.
43	50	.380	34.8	4.5	40%	1.017	-	135	As. R.I. Arthri- tis.
44	55	.530	30.0	1.8	55%	1.003	-	85	As. Syphilis.
45	78	.320	29.7	3.1	61%	1.027	-	140	Paralysis agi- tans.
46	63	.241	40.0	5.4	30%	1.008	-	130	As. R.I. Obesity
47	43	.218	32.3	1.8	60%	1.016	-	124	None.
48	23	.171	32.7	2.4	60%	1.027	-	108	As.
49	18	.435	35.0	2.2	65%	1.006	-	150	As. R.I. Hyper- tension. Myocar- ditis.
50	65	.260	50.0	3.5	60%	1.016	+	230	Sinuetitis.
51	56	.250	45.1	3.9	60%	1.013	-	110	Pelvic periton- itis.
52	58	.248	33.3	3.2	65%	1.003	-	105	As. R.I. Syph. Nephrolithiasis.
						not done.	-	65	As. R.I. Arthri- tis.
							-	104	As. R.I. Arthri- tis.
							-	64	As. R.I. Arthri- tis.
							-	155	As. R.I. Arthri- tis.

NO.	AGE	HIGHEST BL.SUG.	N.P.N.	U.A.	PHENOL	MOSENTHAL	WASS.	BL.	SYSTEMIC PR. COMPLICATIONS
53	68	.228	40.0	4.2	65%	not done	-	150	R.I.
54	46	.360	32.0	2.9	55%	U. neg.	-	120	Arthritis.
55	23	.195	30.0	4.6	50%	None.	-	134	R.I.
56	46	.447	48.7	5.0	N.	Alb. pus cells.	-	165	As. R.I. Hyper- tension.
57	50	.328	26.1	3.9	65%	U. neg.	-	105	None.
58	53	.183	28.2	3.5	40%	heavy trace Alb.	-	190	As. R.I. Hyper- tension.
59	58	.352	42.5	4.6	50%	U. neg.	-	90	R.I. Obesity.
60	52	.180	41.1	2.4	40%	U. neg.	-	135	As. R.I. Hyper- tension.
61	65	.168	29.7	3.4	55%	U. neg.	-	95	As. R.I. Hyper- tension.
62	71	.320	37.5	4.0	40%	not obt.	-	120	Auricular fi- brillation. My- ocarditis.
63	50	.179	29.0	5.0	55%	U. neg.	-	100	As. R.I.
64	45	.268	41.4	3.1	60%	U. neg.	-	118	Car. endo- cervicitis.
65	62	.485	33.0	2.4	65%	1.030	-	150	As. R.I. Car- cinoma cervix
66	58	.333	45.5	3.7	55%	1.032	-	90	Hypertension. Cardio renal
67	53	.448	38.2	3.0	50%	Alb. F.P.T.	-	192	vase. disease
68	66	.200	28.5	4.0	50%	not obt.	-	86	R.I. Obesity. Hy- persten. Myocar- ditis. Arthritis.

Abbreviations used are:
As.—Arteriosclerosis.
R. I.—Renal impairment.
O.—Opacities.
C.—Cataract.
N.—Normal.
HP.—Hyperopia.
M.—Myopia.
P.—Presbyopia.

ASSOCIATED AND COMPLICATING DISEASES

Arteriosclerosis.—The most common systemic disease found with diabetes is arteriosclerosis, which in turn may produce definite evidence of renal impairment. Early arteriosclerosis is difficult to determine clinically. However, it can be reasonably assumed that its presence in the retinal vessels is but part of a generalized vascular senility. Consequently, such a diagnosis was made if the vessels of the retina manifested the following characteristics:

1. Compression effects at the arteriovenous crossing points.
2. Irregularities in the lumen of the vessels.
3. Increase of the arterial light streaks.

Kidney Function.—Determination of the renal status was made with the utmost thoroughness in every case. Instead of merely a routine urine examination serving as the basis for ascertaining the presence of a complicating nephritis, more elaborate studies were made. The nitrogenous elements of the blood stream were determined, the phenolsulphonephthalein excretion estimated, and, when practical, a Mosenthal kidney function test was performed. Renal impairment was assumed if the nonprotein nitrogen content of the blood was found to be above 40.0 milligrams per 100 cubic centimeters, or the uric acid content of the blood above 4.0 milligrams per 100 cubic centimeters. Likewise, if there was definite fixation of specific gravity in the urinary output during twenty-four hours, or if the phthalein excretion was found to be below thirty-five for two hours, it was considered that the patient had kidney damage. Such detailed study was necessary, inasmuch as considerable controversy has

TABLE 2.—*Diabetics with Ocular Disease and Systemic Complications*

CASE NO.	AGE	EYE COMPLICATIONS	COMPLICATING SYSTEMIC DISEASES	CASE NO.	AGE	EYE COMPLICATIONS	COMPLICATING SYSTEMIC DISEASES
1	53	Lenticular opacities.	As. R.I. Obesity.	29	60	Chr.Conj. Retinitis. Rotary Nyctegmus.	As. R.I. Obesity.Pulmonary T.B.
2	71	Lenticular opacities.	As. R.I. Hypertension.	30	43	Chr.Conj.Lenticular opacities. R.I.	
3	75	Lenticular opacities.Retinitis Punctate.	As. R.I. Obesity.	32	58	Neuro retinitis. Lenticular opacities.	As. R.I.
4	79	Retinitis.Ocular palsy.Lenticular opacities.	As. R.I.	33	64	Lenticular opacities.	As. R.I. Coma.Hypertension.
5	51	Lenticular opacities. Choroiditis (old).	None.	34	55	Lenticular opacities. Choroiditis (old).	Cardiac hypertrophy. As. Obesity. Hypertension.
6	45	Lenticular and vitreous opacities.	As. Obesity. Pelvic pathology.	35	50	Lenticular,vitreous opacities. Retinitis.	As. R.I. Obesity.Cholelithiasis.
7	36	Lenticular opacities.	As. R.I. Syphilis.Aneurism. Aortic insufficiency. As? R.I. Obesity.	41	66	Cataracts.	As. Syphilis.
8	52	Cataracts.Xantholemsa.		42	64	Cataracts.	Paralysis agitans.
9	59	Chr.Conj. Retinitis. Lenticular opacities.	As. R.I.	43	50	Xantholemsa.Retinitis. Lenticular opacities.	As. R.I. Obesity.
10	68	Chr.Conj.Lenticular opacities.	As. R.I. Gangrene.	45	78	Cataracts.	As.
11	52	Lenticular opacities.Circin-etc Retinitis.	As. R.I. Obesity.	46	63	Lenticular opacities. Retinitis.	As. R.I. Hypertension. Myo-carditis.
12	50	Lenticular opacities.Retinel oedema.Div.strebiismus.	As. R.I. Obesity.Non toxic goitre.	51	56	Lenticular,vitreous opacities. Retinitis.	As. R.I. Arthritis.
13	56	Chr.Conj.Lenticular opacities. Corneal ulcer O.D.	As. R.I. Hemochrometosis.	53	68	Lenticular opacities. Retinitis.	R.I.
14	55	Lenticular opacities.	As. R.I. Obesity.Cholecystitis.	55	23	Lenses removed for cataract.	R.I.
15	63	Lenticular opacities. Choroiditis (old).	As. R.I. Cholecystitis.Cerebro-vascular accident.	64	45	Retinitis.	As. R.I. Carcinoma of cervix.
16	48	Lenticular opacities. Choroiditis (old)	Diabetic neuritis.	65	62	Lenticular,vitreous opacities.	Hypertension.Cardio renal vascular disease.As.
19	48	Lenticular opacities.Retinitis Punctate.	R.I. Pulmonary T.B.	67	53	Lenticular opacities.	As. Hypertension. Arthritis. Anemia.
21	24	Retinitis et macula only.	R.I.	66		Lenticular,vitreous opacities. Choroiditis (old).	R. I. Hypertension.
22	69	Chr.Conj.Lent.and vitreous opacities.Choroiditis (old).	As. Dermatitis.				
23	66	Lenticular opacities. Choroiditis (old).	As. R.I. Hypertension.				
24	69	Chr.Conj.Lenticular and vitreous opacities.	As. Prostatitis.				
25	64	Lenticular opacities.	As. R.I. Obesity.Hypertension.				
26	72	Chr.Conj.Lenticular opacities.	As. R.I. Arthritis.				
27	56	Chr.Conj.Retinitis Punctate.	As. R.I. Obesity.Hypertension. Pulmonary Emphysema.				
28	56	Lacrimal fistula.Chr.Conj. Chr.Drachyocystitis.	Syphilis.				

Abbreviations used are:
As.—Arteriosclerosis.
R. I.—Renal impairment.
Chr. Conj.—Chronic conjunctivitis.

always existed regarding the rôle diabetes plays in the etiology of various ocular abnormalities.

PROCEDURE IN THESE STUDIES

The ocular studies were based on the following observations:

- 1. Ocular symptoms.
- 2. Vision.
- 3. External eye examination.
- 4. Gross studies of the media.
- 5. Examination of the fundus with separate records for the disk, the retinal circulation and the retina, in each case.
- 6. Tonometric measurements of the intra-ocular pressure.
- 7. Determination of refractive error and time of appearance of presbyopia.
- 8. Perimetric study.

A study of the symptoms was undertaken, both ocular and general, to determine particularly the relative value of the former as a diagnostic aid. Twenty-nine patients, or 43 per cent, mentioned, among their complaints on entering the clinic, symptoms referable to the visual apparatus. This assumes greater importance when it is realized that, in most instances, the various complaints were elicited by an internist, rather than by the specialist interested in visual disturbances. However, and of more significance in the present study, twelve of these patients originally presented themselves to the eye clinic, and the presence of diabetes was determined in the course of a general examination requested by the examining ophthalmologist because of suspicious findings. The most common ocular complaint was failing vision. In most instances, this was explained by the presence of

retinitis, or of lenticular opacities. Headache was the complaint next in point of frequency. Less frequent symptoms were lacrimation, photophobia, night blindness (one case), scotomata, and persistent conjunctivitis.

Table 2 shows the number of diabetics presenting ocular disturbances in our series, and the various types of lesions found.

PATHOLOGIC CHANGES

Carl von Noorden,¹ in a study of 477 diabetics in 1912, found 58 per cent with eye complications. In patients beyond the fifth decade in age, the percentage was increased to 80 per cent. Anderson² found that 28 per cent of the 292 diabetic patients he studied had visual disturbances. Many other statistics, showing similar results, are available. In our series, ocular abnormalities occurred in 63 per cent, but, as will appear later, not all of these can be attributed to diabetes.

Changes in Retina.—Retinitis is the most frequent and most important ocular disease associated with diabetes. Studied first by Edward Jaeger in 1855, and more thoroughly by Hirschberg³ in 1890, this disease has since claimed the attention of many ophthalmologists. Although it is not easily detected through the undilated pupil, or through the cloudy lens of an elderly subject, the presence of retinitis in a patient coming to an ophthalmologist because of failing vision, may lead to a diagnosis of hitherto unsuspected diabetes.

The following characteristics are constant:

- 1. Retinitis is absent in uncomplicated diabetes; when present, it is usually accompanied by generalized arteriosclerosis or renal disease. Unlike albuminuric retinitis, that found with diabetes has no prognostic value.

TABLE 3.—*Patients with Retinitis Together with Systemic Complications*

CASE NO.	AGE	RETINA	COMPLICATING SYSTEMIC DISEASES
3	75	Retinitis Punctata.	As. R.I. Obesity.
4	79	Retinitis.	As. R.I.
5	51	Choroiditis (old).	None.
9	59	Retinitis.	As. R.I.
11	52	Circinate retinitis.	As. R.I. Obesity.
12	50	Retinal Oedema.	As. R.I. Obesity.Non toxic goitrs.
15	63	Choroiditis (old).	As. R.I. Cholecystitis.Cerebro vesicular accident.
16	48	Choroiditis (old).	Diabetic neuritis.
19	48	Retinitis Punctata.	R.I. Pulmonary T.B.
21	24	Retinitis at macula only.	R.I.
27	56	Retinitis Punctata.	As. R.I. Obesity.Hypertension. Pulmonary Embysena.
29	60	Retinitis.	As. R.I.Obesity.Pulmonary T.B.
30	43	Neuro retinitis.	R.I.
32	58	Retinitis.	As. R.I.
34	55	Choroiditis (old).	As. Obesity. Hypertension.
35	50	Retinitis.	As. R.I. Obesity. Cholelithiasis.
43	50	Retinitis.	As. R.I. Obesity.
46	63	Retinitis.	As. R.I. Hypertension.Myocarditis.
51	56	Retinitis.	As. R.I. Arthritis.
53	68	Retinitis.	R.I.
64	45	Retinitis.	As. R.I. Carcinoma of Cervix.
68	66	Retino choroiditis (old).	R.I. Hypertension.

Abbreviations used are:
As.—Arteriosclerosis.
R. I.—Renal impairment.

2. It is most commonly seen in patients beyond fifty years of age, who have a mild diabetes. It is never seen in juvenile diabetes. Clapp's⁴ youngest patient was thirty-four years old, Nettleship⁵ reported one patient thirty-five years of age, and Foster Moore's⁶ youngest patient was thirty-nine.

3. It is usually bilateral.

4. The most common form of retinitis associated with diabetes is seen as small, irregular, sharply defined white patches, single or in groups, not tending to become confluent, and occurring in the macular region or in the region between the macula and the disk. The stellate figure is not seen. Punctate hemorrhages may be found scattered about the retina; but other retinal changes like edema, patches of soft fluffy exudate and optic neuritis, are uncommon.

The microscopic pathology was described by Lo Russo Donata⁷ as follows: "The vessels show hyaline thickening. Hemorrhages are present in all the retinal layers. Deposits of hyaline-like material occur in the nerve fiber and ganglion cell layers. These are probably coagulated fibrin. Degeneration of the ganglion cell layer is apparent."

Retinitis was observed in our series in sixteen cases, or 23 per cent. These have been grouped in Table 3.

From this study, it must be concluded with Spalding and Curtis,⁸ Wagener and Wilder,⁹ Beauvieux and Pesme,¹⁰ and others, that the retinitis seen with diabetes is primarily the result of cardiovascular-renal disease, although possibly modified somewhat by the presence of the diabetes. The fact that retinitis has only been observed in patients who have attained middle life

lends support to this assumption. It may be noted that the so-called retinitis centralis punctata diabetica of Hirschberg occurred three times in our series. This is a higher percentage than reported by Wagener and Wilder, who found it only twice among 300 diabetics; Spalding and Curtis found it twice among 307 diabetics.

While the term "diabetic retinitis" probably is a misnomer, inasmuch as diabetes apparently is not related etiologically to its development, our studies seem to indicate that the retinitis seen in diabetes has a distinct diagnostic value. Its characteristics are not difficult to recognize, and when present in its typical form, which is not unusual, a detailed examination of the patient should be made to eliminate diabetes as a contributing factor. The presence of retinitis of a more or less uniform pattern, in sixteen cases among sixty-eight adult diabetics, supports this view.

Lenticular Changes.—Lenticular changes are usually considered the second complication of importance in diabetes. If we restrict the term "diabetic cataract" to that type seen in young people or in those in early middle life, in which the opacity is bilateral and rapidly progressing, often reaching maturity within a few months, it is a rarity. In our series, although the youngest patient was eighteen years of age, none was seen. However, one patient, Case 55, who was twenty-four years of age, had previously been operated on for bilateral cataracts, which probably appeared subsequent to the onset of his diabetes, some ten years before he came to our attention. Galezowski¹¹ reports a case in a child of nine. Weeks¹² concurs in the opinion that true diabetic cataract is extremely rare. During an experience of forty-five years he saw only two or three patients presenting this complication.

That lenticular opacities occur quite commonly in any series of diabetics who have attained middle life, is to be expected, for diabetes of any duration predisposes to degenerations and premature senility. The high incidence of cataracts reported in most statistical studies—Schmidt-Rimpler¹³ 45 per cent, and Gradle¹⁴ 53 per cent—must be explained on some such basis. Furthermore, if the occurrence of lenticular opacities be determined in nondiabetics of similar age groups, only a slightly higher percentage in diabetics becomes apparent. Gradle, in a series of nondiabetics between forty-one and fifty years, found 34 per cent to have some degree of lenticular clouding, while between the ages of sixty-one and seventy years the percentage was increased to sixty-eight.

Our study of this group of patients would seem to indicate that although lenticular opacities are an important ocular complication of diabetes, at least in adult life, it is yet to be proved that diabetes plays an important rôle in their production. The lenticular changes bear no distinguishing characteristics that serve to differentiate them from the usual changes associated with senility. Certainly their presence in most diabetics is an incidental finding, and hardly warrants the

assumption that they are of diabetic origin. Furthermore, controlling the diabetes failed to influence favorably the lenticular opacities.

Thirty-seven patients in our series, or 54 per cent, had lenticular opacities, diagnosed with the aid of the ophthalmoscope. The youngest patient was forty-three years of age.

Refraction Changes.—Sudden changes in refraction are seen occasionally in diabetics. These are caused by deviations in the index of the intra-ocular media. Many such cases have been reported. In reviewing the records of our patients, we found that twenty-three were hyperopic, eleven myopic, and thirty-four emetropic. Re-examination of their refractive error revealed no unusual changes other than those due to the presence of progressive senile cataracts.

It frequently has been observed that transient obscuration of vision may occur in diabetic patients with acidosis, and especially in those who have recently passed through a stage of coma. The period of dimmed vision may last a few days or several weeks. This phenomenon probably can be explained on the hypothesis that there is an alteration in the intra-ocular concentration of glucose, since reduction of the glycosuria and hyperglycemia to normal results in restoration of vision to its original acuity.

Changes in Accommodation.—Paralysis of accommodation is usually listed among the complications of diabetes. In fact Parker¹⁵ states that next to cataract, it is the most frequent ocular manifestation of the disease. The sudden appearance of this symptom in a patient otherwise apparently healthy, should suggest diabetes as a possible cause; it has been reported often enough to prove its relationship to diabetes mellitus. In the series of cases under consideration this abnormality was not observed.

It is interesting to note that, in our series, the average age of onset of presbyopic symptoms was forty-seven years. This is quite in keeping with the usual findings in normal individuals. From this it may be concluded that the appearance of early presbyopia in diabetes is only a very occasional finding.

Extra-Ocular Muscle Function Changes.—Extra-ocular muscle palsies have been reported in about four per cent of diabetics. Although carefully searched for, only one was found in this series.

Changes in Perimetric Fields.—The perimetric fields were taken routinely in our patients. This included examination by the perimeter and Bjerrum screen. The findings, while interesting, were not unusual. Twelve, or 17 per cent, showed alterations from normal—usually irregular contractions, or scotomata. Abnormalities in the visual field in every case could be explained by such complications as retinitis or lenticular opacities. No case of retrobulbar neuritis was revealed.

Changes in Ocular Tension.—A routine study of the ocular tension proved of major impor-

tance, as it revealed nine cases of hitherto unsuspected glaucoma simplex. In diabetes, as in many other conditions, failure of vision is often attributed to the presence of lenticular opacities or retinal changes, whereas the major ocular disease may be glaucoma.

Whether the intra-ocular pressure bears any definite relation to hyperglycemia, is unknown. A study of the literature indicates that only slight interest has been taken in the matter. Gifford¹⁶ states that changes in the intra-ocular tension occasionally occur in diabetes. He has observed a few cases of glaucoma associated with diabetes, but believes these are the result of a vascular lesion and are almost always accompanied by hemorrhages.

That ocular hypotonia is the rule in severe cases of diabetes in coma has been established definitely. This in itself would suggest the possibility of a relationship existing between diabetes and intra-ocular tension. Furthermore, the fact that the intra-ocular tension sometimes increases after the injection of insulin, has been commented upon. E. Marx¹⁷ studied five patients and found that a rise of tension followed insulin administration in three. He believes that the general trend of glycemia and intra-ocular tension, while not exactly parallel, is quite similar. Ascher,¹⁸ likewise, observed the sudden rise of tension in some patients following insulin injection, and suggested that a relationship existed between the water economy of the human organism and the intra-ocular tension.

Table 1 indicates the intra-ocular tension of each of our patients. The tensions were taken by one of us (J. W. C.) with a Shiotz tonometer. If a reading of over 20 millimeters was obtained, the examination was repeated after an interval of a week. If 25 millimeters of mercury (Shiotz) is accepted as the upper limit of normal, there were nine patients in the series with readings above normal; ten others had a tension of 25 millimeters in both eyes.

Whether or not the intra-ocular tension in diabetes is related to the metabolic disorder, we are unable to say. The fact that most of these patients are taking insulin must be considered. No attempt was made to measure the tension before and after insulin administration. However, the presence of an abnormally high tension in nine patients among sixty-eight who had no symptoms of glaucoma is out of all proportion to that usually found in nondiabetics. Unfortunately, the presence of lenticular opacities in many patients disguises the symptoms. The early recognition of glaucoma is so important that it should be sought for in all diabetics who can have the advantage of an eye examination. Possibly, also, all patients with glaucoma should have the advantage of a blood sugar estimation. Certain it is that more studies will have to be made on the intra-ocular tension in diabetes to prove or disprove the existence of a relationship between the two.

COMMENT

From this brief discussion of the ocular findings in a series of sixty-eight diabetics, it seems that very few of the ophthalmic complications associated with diabetes result directly from that disease. In fact, with the possible exception of juvenile cataract and elevation of the intra-ocular tension, diseased conditions occurring in the eyes of diabetics usually may be ascribed to some other cause. However, it can safely be said that many of the ocular abnormalities are indirectly related to the presence of diabetes.

The ravages of this disease are manifold; and probably the greatest of these is the production of a premature senility. This in turn results in an impaired circulation of the entire body. The eye does not escape any more than do the heart or kidneys. Consequently, it is not surprising to find in our studies definite indication that almost all of the ocular diseases found in association with diabetes result from other more generalized complications of that disease. This is emphasized by the data summarized in Table 2. A perusal of this table shows that of the forty-three patients giving evidence of ocular disease, thirty-three, or 77 per cent, had clinical and laboratory evidence of renal impairment. This is shown by either a retention of nitrogenous elements in the blood stream to a point where the N. P. N. exceeds 40 milligrams per 100 cubic centimeters, or the uric acid is above 4.0 milligrams per 100 cubic centimeters, or the phenolphthalein excretion has fallen below 35. Thirty-two patients, or 47 per cent, had obvious sclerotic changes in the blood vessels. It is, of course, realized that the average age of this group of patients is beyond middle life when the normal effects of senility begin to manifest themselves. At the same time diabetes is primarily a disease of late middle life, the average onset occurring at about the age of fifty years. Many changes, therefore, ordinarily found in elderly individuals, may be found in diabetics of similar age or even at a much earlier age, provided the disease has been present long enough for its effects to become manifest. However, the presence of these senile changes, even in young people, is by no means diagnostic of diabetes mellitus. Likewise, it is not to be assumed that the presence of diabetes results, *a priori*, in the production of ophthalmic disease. Many diabetics who have had the disease for years may escape any or all of its complications.

In order to eliminate the effects on the eye of the more generalized systemic pathological changes resulting from diabetes, it would seem advisable to conduct an investigation in all respects similar to that described above, on a group of diabetics, the upper age limit of which would be thirty-five years. In such a group it could be reasonably assumed that the normal changes resulting from old age would be entirely eliminated.

However, until such a study is made it should be emphasized that the occurrence of retinitis, especially if it conforms to the type previously described, or of early cataracts, or of other ocular

manifestations frequently associated with diabetes, should immediately suggest the possible presence of this disease. Many cases of unsuspected diabetes will thus be found; and in many instances treatment of the systemic disease may help materially to alleviate the ocular symptoms.

CONCLUSIONS

1. Complete eye examinations were made on sixty-eight diabetic patients ranging in age from eighteen to seventy-nine years, the average age being fifty-four years.

2. An effort was made to ascertain the presence of complicating systemic diseases, particularly renal impairment and arteriosclerosis.

3. Retinitis of a somewhat characteristic pattern was found in 23 per cent of the patients, all of whom had renal impairment, and all but four had generalized arteriosclerosis.

4. Lenticular opacities were diagnosed in 54 per cent of the patients; but no distinguishing characteristics were noted.

5. The average age of onset of presbyopic symptoms was the same as for nondiabetics.

6. There were no characteristic perimetric changes.

7. The intra-ocular tension was definitely increased in 13 per cent of the patients.

8. It is suggested that almost all diseases of the eye found in association with diabetes result from systemic complications of that disease. Two abnormal conditions which may ultimately prove to be exceptions to this statement are juvenile cataract, and elevation of the intra-ocular tension.

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DISCUSSION

GEORGE NEWTON HOSFORD, M.D. (490 Post Street, San Francisco).—I am sure we are all grateful to Doctor Crawford for collecting and classifying these sixty-eight cases of diabetes, showing ocular complications. Such compilations are, of course, the chief value of clinics, but the labor involved is time-consuming and fatiguing.

Doctor Crawford has been careful to draw no general conclusions from the study of this series which are not in accord with the conclusions reached by the studies of similar groups of cases elsewhere.

However, where figures in this series differ widely from those of other similar studies should be pointed out, otherwise the reader unfamiliar with ophthalmic literature might be unintentionally misled.

For example, the incidence of the two most frequent ocular conditions, retinitis and cataract coincide very accurately with other published figures, but in most series the third most frequent complication is retrobulbar neuritis, and I am at a loss to account for its absence in so large a series. I am quite sure it is not due to any lack of observation on Doctor Crawford's part, for those of you who know him know that there is nothing from which he derives such whole-souled pleasure as he does from the contemplation of a central scotoma. He looks for them on all occasions.

In R. Foster Moore's series of sixty-two diabetics, retrobulbar neuritis was found six times where tobacco and alcohol could be excluded with certainty. This is a trifle less than 10 per cent. Von Noorden's series is about the same.

The fact that the youngest patient in this series was eighteen years of age should, of course, not be interpreted as meaning that diabetic cataract does not occur in children, for it does. The occurrence of diabetic cataract in a child of eleven months was reported in 1925. I have seen it in a child seven years of age. In fact, where the traumatic and congenital type can be excluded in the history, diabetes must be the commonest cause of uncomplicated cataract in young individuals.

I find only one statement in the paper, which I should wish to challenge in any way, viz., "that whether the intra-ocular tension bears any definite relation to the hyperglycemia is unknown." This relation is known and known with great accuracy, thanks to the classical researches of Duke-Elder and others. I became interested in the subject when a medical student because of its manifest importance in glaucoma.

I had been fascinated by seeing Doctor Naffziger reduce intracranial pressure by the intravenous injection of hypertonic Ringer's solution, and wondered if it would work in glaucoma and was highly delighted when I found that it would. I then looked the subject up and found that Hertel had employed the method as early as 1915, and in 1917 Sansum had lowered the intra-ocular tension from around eighty to somewhere in the thirties by the intravenous injection of glucose.

Duke-Elder has shown that the concentration of sugar in the aqueous lies between the concentration of sugar in the arterial and venous blood plasma, and others have assumed that it is identical with the concentration in the capillary blood plasma.

However, that is just part of a more general law. Not only does the concentration of sugar in the aqueous equal its concentration in the blood plasma of the capillaries, but all the crystalloid elements in the blood behave in the same way. The capillaries in the eye act as a permeable membrane to crystalloids, but as a semipermeable membrane to colloids, so that any permanent change in the intra-ocular tension must be brought about by alterations in the colloids.

This brings us to the explanations for several of the observations Doctor Crawford just mentioned in passing. These phenomena are due to the upsetting of the water balance that occurs in diabetes. When the organism is unable to utilize sugar it is excreted and it must necessarily be excreted in solution, hence the thirst and polyuria of diabetics. When the thing is carried to an extreme, we have dehydration, which results in the intra-ocular hypotonus, characteristic of diabetic coma.

The administration of insulin would reduce the sugar content of the blood. A corresponding reduction in the amount of sugar in the aqueous humor would follow. This would reduce the osmotic pressure and consequently the intra-ocular tension, provided other factors were kept constant.

✽

M. F. WEYMANN, M.D. (2007 Wilshire Boulevard, Los Angeles).—With the slit lamp, Schnyder examined the lenses of fifty-nine diabetics who were affected with cataract, and in only one of them found changes differing from the pure senile form. In this one patient, whose condition he considered specific of diabetes, there was in the early stage a subcapsular layer of very fine vacuoles, both in the anterior and posterior cortex. Later large water clefts and larger vacuoles developed through increased water absorption. A similar case has been described by Meesmann, and I have seen one such case. Schnyder's patient was thirty-three years old, Meesman's thirty-six, and mine forty-five. All of these patients also had a rather severe diabetes. This water absorption, occurring to a lesser degree without the formation of clefts or vacuoles, is probably the mechanism of production of the well-known changes in refraction in diabetes. One such case examined by me showed no change in the lens structure with the slit lamp, so that this type of swelling must occur in the fibers themselves.

✽

DOCTOR CRAWFORD (Closing).—In regard to the frequency of retrobulbar neuritis in diabetes, we found no cases, although the perimetric fields were examined routinely; the perimeter and Bjerrum screen being used.

Doctor Hosford's remarks on the relationship between the blood sugar content of the blood and the intra-ocular fluids, as explained by Duke Elder, is of great interest. The fact that 13 per cent of our diabetic patients had increased intra-ocular tensions is of considerable importance and will warrant further study.

The entire absence of true diabetic cataracts in the series, is somewhat surprising, although Doctor Weeks says that in forty-five years' experience he has only seen one or possibly two, true diabetic cataracts. One patient in our series had both lenses removed by Doctor O'Connor for cataracts, and he believes these were true diabetic cataracts.

Retinitis was present in 23 per cent of our patients. The great variance in the percentage of retinitis in various diabetic clinics can probably be explained by the fact that not all diabetic patients are examined by ophthalmologists.

ACNE ROSACEA*

WITH PARTICULAR REFERENCE TO GASTRIC
SECRETION

By NORMAN EPSTEIN, M. D.

AND

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San Francisco

DISCUSSION by Garnett Cheney, M. D., San Francisco;
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THE purpose of this paper is to report the result of gastric secretion studies in twenty-four cases of acne rosacea; and to give a brief description of the disease itself.

PATHOLOGY

Acne rosacea is not uncommon among skin conditions, comprising about three per cent of all dermatological cases. It occurs more frequently in women than in men, the ratio being three or four to one. This disease may be defined as a chronic congestion of the central two-thirds of the face, which eventually leads to permanent vascular dilatation of that area. There are three fairly distinct phases in the development of the condition. A simple reddening or flushing of the facial skin—which at first is transient, later becoming more persistent—is the earliest symptom. Secondary to the increased circulation in this portion of the face an overaction of the sebaceous glands occurs, which is followed by the appearance of patulous follicles, acne pustules, and patches of seborrhea. In a few instances, in elderly men only, a fibrous tissue overgrowth appears in the subcutaneous portion of the nose, with a resultant enlargement and lobulation of that organ, namely, rhinophyma.

Because the term "acne rosacea" has been somewhat confused with "acne vulgaris," recent writers have preferred to drop the prefix "acne," and refer to the disease simply as "rosacea." The differentiation between these two conditions is quite clear. Acne vulgaris is due primarily to an overaction of the sebaceous glands of the face, neck, chest, and back; occurs in the second and third decades of life, and is characterized by

comedos and pustules in these areas. On the other hand, rosacea is a disease of the third and fourth decades of life, and is primarily a vascular disturbance of the central two-thirds of the face, with a secondary overaction of the sebaceous glands.

It is generally accepted that rosacea is due to some internal disturbance, although the exact cause has not been definitely determined. The habitual use of alcohol and the presence of dyspepsia are referred to as important etiologic factors.

The association of eye lesions with rosacea is being reported more and more frequently by ophthalmologists, who find a type of vascular keratitis, corneal ulceration and vascular nodules in the cornea. These ocular complications have not as yet received the proper attention by dermatologists.

ACNE ROSACEA AND GASTRIC DISTURBANCES

The flushing of the facial skin in patients with rosacea is markedly increased in many instances by the ingestion of certain foods into the stomach, such as alcohol, hot liquids and solids, tea, coffee, and highly seasoned foods. The relationship of diet to rosacea, and the association with this disease of certain gastro-intestinal complaints such as flatulence, a feeling of fullness after meals, nausea, lack of appetite, constipation and diarrhea, have caused clinicians to regard the condition as either due to or greatly influenced by altered digestive processes.

During the past ten years, investigators have been approaching the problem from this standpoint, and have emphasized the importance of a study of the gastro-intestinal tract by means of the x-ray and of observations on gastric secretion.

Pathologic changes of the digestive organs associated with rosacea are very infrequent; on the other hand, hypochlorhydria in the gastric secretion occurs in a large percentage of the cases. Studies of gastric secretion have heretofore been made by the fractional gastric analysis, gruel being used as the test-meal.

The published reports of investigators in this field are analyzed in Chart 1.

COMMENTS ON CHART I

In a total of 163 cases of rosacea studied, 57.6 per cent were found to be subacid. A complete

CHART 1.—Summaries of Some Gastric Analyses

Reported by	Achlorhydria 0 Free HCl	Hypochlorhydria under 20 Free HCl	Hypochlorhydria 20-30 Free HCl	Normal	Hyperchlorhydria 45+
Eastwood, S. R.	4	11	9	21	5
Rulison, R. H.	7	17	11	10	5
Brown, W. H.	7	8	13	18	4
Ryle and Barber	55	2	5
Total cases	23	38	33	54	14
Per cent of cases	14%	23.4%	20.2%	33.1%	8.7%
57.6% Subacid					

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* Read before the Section of Dermatology and Syphilology of the California Medical Association meeting at Del Monte, May, 1930.

achlorhydria was shown in 14 per cent, no free hydrochloric acid being present in any of the specimens taken. A marked hypochlorhydria was shown in 23.4 per cent, the free hydrochloric acid not rising above twenty; while 20.2 per cent did not exceed thirty points of free hydrochloric acid.

As important as the finding of hypochlorhydria in rosacea, is the fact that these authors report that marked clinical improvement is obtained by the internal administration of dilute hydrochloric acid—in many instances to an extent out of proportion to the degree of hypochlorhydria found.

Recent advances in gastric analysis by the introduction of the alcohol test-meal and of the histamin method of stimulating gastric secretion have prompted this study.

The authors treated twenty-four patients, of whom eighteen were females and six males, with a ratio of three to one. Their ages ranged from twenty-seven to seventy-four years; and the duration of the disease varied from one month to fifty years. There was a definite history of alcoholism in two patients, while in three others alcohol had been taken in moderate amounts. In ten patients no alcohol had been taken. Blood pressure findings showed a definite hypertension in five patients, while in only two was the blood pressure below normal.

SUMMARY

A series of twenty-four cases of rosacea is presented. In each patient a gastric analysis was done by the alcohol test-meal method. (In a few instances the histamin method was used also, but these findings are given here in only one case.) The alcohol test-meal offers a standardized method for the study of gastric acidity, and eliminates the various factors leading to the recognized inconsistencies and uncertainties of the Ewald test-meal. The alcohol meal was preferred to histamin injections because of the occasional disagreeable reactions following the latter.

TECHNIQUE

The patient was fasted for twelve hours prior to the beginning of the test. The fasting contents of the stomach were aspirated, and then 100 cubic centimeters of seven per cent alcohol were introduced by means of a large Luer syringe through the Rehfuß tube into the stomach. Ten cubic centimeter samples of the stomach contents were taken at 30 minutes, 60 minutes, and 120 minutes

after the introduction of the alcohol. At the conclusion of the test the entire stomach contents were withdrawn. These samples were then titrated with 0.1 normal sodium hydroxid in the usual manner for free and combined hydrochloric acid.

It was necessary that the samples withdrawn from the stomach be clear and contain no bile. In the presence of bile the sample was discarded. The acidity was determined within two hours after withdrawal of the contents from the stomach.

GASTRIC ANALYSIS RESULTS

The results obtained by gastric analysis in these cases of rosacea may be classified according to the degree of free hydrochloric acid found in the gastric secretion. It is difficult to state exactly what constitutes the normal gastric acidity and the normal variation therefrom according to the alcohol test-meal. Previous writers have usually regarded thirty units of free hydrochloric acid in the gastric juice as the lower limits of normal for the Ewald fractional meal. Workers with the alcohol test-meal regard twenty units of free hydrochloric acid as the lower limits of normal. This estimate, which may be regarded as conservative, is used in the grouping of the present data.

Our first group is that in which an *achlorhydria* was present, no free hydrochloric acid being present in any of the specimens. Seven patients, or 29.1 per cent of the total number studied, fell into this group.

Those patients whose free hydrochloric acid was not over ten were placed in the second group of patients with *marked hypochlorhydria*. There were four of these, or 16.6 per cent of the total.

The third group included patients with a *moderate degree of hypochlorhydria*, with free hydrochloric acid above ten and under twenty. There were seven of these cases, or 29.1 per cent of the total. One patient is included here whose gastric secretion was obtained after histamin (78), the normal acidity range by histamin being 90 to 125.

The fourth group, or the *low normal*, in which the free hydrochloric acid did not go over thirty, included three patients, or 12½ per cent. It should be noted that other reports have regarded this group as showing a slight hypochlorhydria.

Three patients were normal, the free hydrochloric acid being between thirty and fifty, or 12½ per cent.

Chart 2 shows these findings.

CHART 2.—Gastric Secretion Studies				
Gastric Secretion	No. Cases	Male	Female	Per Cent of Total
Achlorhydria—No free HCl	7	4	3	29.1%
Marked hypochlorhydria—Free HCl under 10	4	1	3	16.6%
Hypochlorhydria—Free HCl under 20	7	1	6	29.1%
Lower limits of normal—Free HCl under 30	3	0	3	12.5%
Normal free HCl, 30-45	3	0	3	12.5%
Hyperchlorhydria 45+	0	0	0	0.0%
75 per cent Subacid				

COMMENTS ON CHART 2

Considering the series as a whole, eighteen cases, or 75 per cent, were very definitely in the hypochlorhydria class, while three others, or 12½ per cent, were in the lower limits of normal. These figures are somewhat higher than reported by other investigators, who found 57.6 per cent of rosacea patients as subacid. Hypochlorhydria is a finding common to a variety of diseases, among which may be mentioned pernicious anemia, subacute combined degeneration of the spinal cord, pellagra, sprue, infectious arthritis, etc.

The significance of this finding in rosacea can be estimated by the clinical results obtained by the internal administration of dilute hydrochloric acid, which was given in teaspoonful doses in a large glass of water with meals. In the majority of the cases there is an immediate response; the intense flush subsides, acne lesions tend to disappear, and the patient feels better generally. The mild types of the disease do not seem to improve as rapidly as the severe ones. While the patients with complete achlorhydria derive most benefit as a rule, often the extent of improvement is out of proportion to the degree of hypochlorhydria. Patients with normal findings are also benefited by dilute hydrochloric acid. In the present series, we have had the opportunity of following the course of the condition for several months in fifteen cases while they were taking the hydrochloric acid. Of these, thirteen made a 50 to 75 per cent improvement. Two did not improve at all. None of the patients were, however, completely relieved of their symptoms.

Complete cure of rosacea is reported in many instances by certain investigators by the use of dilute hydrochloric acid internally in combination with other therapeutic agencies, namely, the regulation of the diet with the omission of alcohol, highly seasoned foods, tea, coffee, and hot liquids; relief of constipation; local applications to the skin; x-rays and ultra-violet rays; and destruction of enlarged superficial vessels in the skin.

While we have not seen complete relief of the rosacea in our cases which have, perhaps, been under observation for too short a time, a flare-up of the condition has been noted when patients neglect their intake of hydrochloric acid for a few days. From a clinical standpoint, there seems to be no relation between the degree or hypochlorhydria and the severity of the rosacea.

COMMENT

The standardized technique of the alcohol test-meal affords an accurate means of determining gastric acidity. If employed by other investigators, valuable data will be obtained for clinical analyses.

Gastric secretion findings in this series of rosacea cases emphasize the frequency with which hypochlorhydria is associated with this disease. Clinical improvement following the internal ad-

ministration of dilute hydrochloric acid links this finding closely to the pathogenesis of the disease.

Hypochlorhydria is a finding present in too many conditions to regard it as the causative factor in any one disease.

CONCLUSIONS

1. A marked hypochlorhydria was demonstrated in 75 per cent of this series of cases of rosacea.

2. Definite clinical improvement followed the internal administration of dilute hydrochloric acid.

450 Sutter Street.

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DISCUSSION

GARNETT CHENEY, M. D. (210 Post Street, San Francisco).—The association of lesions of the skin and mucous membranes with low or absent free acidity of the stomach is well recognized, but very little understood. The relationship is difficult to explain because the great majority of people with true achlorhydria do not have skin lesions. I have several times noted marked improvement in aphthous stomatitis and chronic eczemas following the administration of dilute hydrochloric acid, occasionally only after far larger doses than Doctor Epstein has used. Four or eight cubic centimeters three times a day might have produced a great improvement in some of his patients. It is a pleasure to note that his investigation is based on a correlation between dermatology and internal medicine.

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SAMUEL AYRES, JR., M. D. (2007 Wilshire Boulevard, Los Angeles).—The authors have confirmed the observations of many other investigators regarding the causative relationship between gastric hypochlorhydria and many cases of acne rosacea. I have had no personal experience with the alcohol test-meal. Unless it can be shown that this method has very decided advantages over the Ewald test-meal, the latter would seem preferable inasmuch as it approaches more nearly the normal daily stimulus. Also the microscopic evidence of the degree of chymification obtainable with the Ewald meal is confirmatory of the degree of titrated acidity. I am glad to hear the authors recommend the use of dilute hydrochloric acid rather than large quantities of citrus fruit juice in the treatment of their patients with hypochlorhydria.

Some of the cases of rosacea with normal gastric secretion, will be found to be caused by an excessive infestation with the *Demodex folliculorum*, a worm-like insect which inhabits the sebaceous ducts. During the past two years we have encountered at least twenty cases of rosacea in which large numbers of *Demodex* were found microscopically in pus and follicular scales, and which were cured by the application of a strong parasiticide such as is used in scabies. Simultaneous with the clinical improvement there was a disappearance of the *Demodex* on microscopic examination. Most of these patients were women, and many had forsaken the daily use of soap and water for cleansing creams which may have favored the abnormal development of the *Demodex*. A detailed report of these cases will be published in the near future.

FEMORAL CONDYELITIS*

REPORT OF CASES

By MERRILL COLEMAN MENSOR, M. D.
San Francisco

DISCUSSION by James T. Watkins, M.D., San Francisco; E. W. Cleary, M.D., San Francisco.

IN the past year I have encountered two rather unusual cases, the first being of a puzzling nature as to the matter of therapy and accurate diagnosis. The second, following about three months later, showed such a parallelism, both from the history and physical findings, that the writer was led to inquire among his colleagues and to look up the literature rather thoroughly in hopes of finding a syndrome under which these two cases could be classified. To date he has been unsuccessful in this matter, but believes the symptoms and signs are so definite that for the purpose of description he shall term them "femoral condylitis."

REPORT OF CASES

CASE 1.—Mr. H. C. A. Rancher, forty years of age. Referred by Doctor Scarborough.

Complaint.—Pain and soreness of the right knee.

History.—About three days before admission, without known trauma, the patient suddenly developed a sharp boring pain on the outer side of the right knee which was accentuated by weight bearing or attempted motion of the knee-joint. He was able to walk with difficulty and only with a pronounced limp.

Past history: The patient's past history was negative except for a severe tonsillitis about three weeks previous from which he had entirely recovered.

Examination.—The knee was held slightly flexed and attempts at motion, either active or passive, elicited severe pain. There was no increased mobility of the knee-joint or gross deformity of same. There was no increase in joint fluid. Along the external condyle of the femur, about two centimeters above the joint line, was a localized area of tenderness with a small amount of pitting edema and slight increase in the local temperature. The rest of the physical examination, both as to the limb and to his general condition, were absolutely negative. Blood picture showed 13,200 white blood cells with 85 per cent polymorphonuclear leukocytes. Temperature showed an average elevation of about one degree.

X-Ray (Stanford University Hospital).—The x-ray examination showed a small defect over the external condyle about two millimeters in diameter with a small calcified mass about the same size adjacent to it in the soft tissue.

Doctor Chamberlin diagnosed this as a small avulsion fracture of the condyle.

Treatment and Course.—Because of our laboratory and clinical findings and the persistence of localized pain, which we believed to be of an inflammatory nature, an osteotomy was done on the third day. At operation there seemed to be some increased hyperemia about the site, the periosteum was not elevated and there was no free fluid either serous or purulent.

After culture was taken the wound was closed without drainage, the patient discharged from the hospital on the tenth day, his temperature having dropped to normal on the day following the operation. The wound healed by second intention, there being a slight apparently superficial suppuration which lasted for about three days. At this time there was no soreness or tenderness present, and the patient had a full range of motion in the knee-joint. As far as we can ascertain a year later, there has been no further trouble or disability. A culture from the operative wound showed *Staphylococcus albus*.

Comment.—The second case, occurring just a few months later, was so familiar in all respects that it led me to believe we were dealing with a definite clinical entity, and I profited by my former experience by varying treatment, for the better, I believe.

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CASE 2.—Mr. W. C. C. Steward. Referred by Dr. T. D. Meagher.

Complaint.—Painful right knee.

History.—In April 1929 the patient suddenly developed a soreness on the outside of his right knee which became progressively worse, and a day later, while kneeling, the pain became so severe that he could not maintain this position. On attempting to stand he was unable to place his weight on his feet. He was removed to his home, complaining of a constant sharp pain in the knee; any motion, and even pressure of the bed clothes, caused extreme pain.

Examination.—The examination was negative except for localized tenderness over the external condyle about two centimeters above the knee-joint, with a smaller amount of edema, redness, and increased heat. Motion of the knee-joint in any direction was impossible because of the extreme pain and spasm.

The temperature was 100.6 degrees F. Blood count 12,500 leukocytes, with 75 per cent neutrophils.

X-Ray (St. Luke's Hospital Report).—There is a chip fracture and periosteal tear of the lateral condyle of the right femur. There is no soft tissue swelling or periosteal thickening in this region.

Course.—The limb was elevated and the pain controlled by opiate and constant heat applied to the leg. The temperature gradually dropped, becoming normal on about the fifth day. The pain and tenderness gradually disappeared, with motion of the joint increasing daily. At the end of a week there was free range of motion, no pain on weight bearing, and the patient had entirely recovered. He was followed at intervals for about two months and there was no return of the symptoms or further findings referable to this condition.

COMMENT

It is with no small amount of timidity that the writer essays to call this to your attention as a definite clinical syndrome. No doubt many colleagues will state that the x-ray appearance in these two patients was due to a small avulsion fracture and, as a natural sequence of events, a patient suffering a trauma of this type would be more or less disabled and have considerable pain. In answer to this, it would seem that the evidence presented is so overwhelmingly in favor of an inflammatory process that the former issue can really be dismissed. Trauma, as far as can be elicited by careful and repeated interrogation, can be definitely excluded.

* From the department of orthopedic surgery, Stanford University Medical School.

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

In this condition are found all the signs of an acute inflammation: fever, leukocytosis, local tenderness, and edema with increased elevation of temperature of the affected part. Studying the first case in retrospect, in light of then available knowledge, we can readily see that our differential diagnosis, with injury and joint involvement eliminated, would simmer down to a possible osteomyelitis of the femur. It was on this provisional diagnosis that the operative procedure was advised, and with no little chagrin the writer found the presence of pus to be conspicuous by its absence. This would have done nothing more than have shown inadequacy as a diagnostician had not the second case come under observation, exactly parallel in all its findings.

If present conceptions regarding bone inflammation are correct, this condition can be attributed to a localized infection having a peculiar selectivity for the femoral condyle. The writer is at a loss to explain the significance of the x-ray findings. The question whether the organism recovered in the first operative procedure was the etiological factor or merely a contamination, is open to discussion and can only be cleared up in light of future experience.

However, with an infection of apparently such a low virulence, operative procedures would hardly seem to be indicated and the treatment followed in the second case would probably be the more logical. The medico-legal aspect of this condition, especially in its relation to industrial medicine, is important. Most of us, having a workman report to our office complaining of pain in his knee, may be led to a hasty conclusion of injury by the x-ray interpretation of the condition. However, if we stop to consider the severity of the symptoms as characterized by the acute illness and pain of the patient, in contrast with the minimum roentgenological findings, we should not be led astray.

490 Post Street,

DISCUSSION

JAMES T. WATKINS, M. D. (909 Hyde Street, San Francisco).—I can add only one case to Doctor Mensor's list. Some time before the war I saw a nun who presented identical symptoms and a strikingly similar x-ray picture. Without a history of trauma, she first noticed the pain in the external condyle of the right knee as she was getting up from her devotions. Thereafter motion was markedly curtailed and exceedingly painful. X-ray examination showed an elevated piece of bone about as thick as a millet seed at, I should say, about the point where Doctor Mensor noted his. There was mild tumefaction and tenderness to palpation over it. It did not occur to me to have a blood count, nor did I look for a rise of temperature—though both might be present following a break—because I at once thought of a small cortical fracture; but I did advise immobilization.

I have wondered if the following anatomical fact could have any significance. Examination of the lower articular surface of the femur shows that it is formed by chords of the arcs of two circles of which the posterior, or lesser, has its center in the femoral condyle, while the center of the larger is well up on the shaft of the femur. Now at the instant that the head of the tibia passes from the lesser to the greater

curve, or vice versa, the mechanism of joint motion is changed and an added stabilizing strain thrown upon some one point which may well be the spot where Doctor Mensor and I noted these changes in the x-ray. It is an interesting speculation.

There was an interesting sequel to my case. Soon afterward this good soul placed herself under the care of a surgeon in another town among whose recommendations was a theology more orthodox than my own. He cut down on the thing, it became infected, and she developed a stiff knee, which, of course, interfered with her comfort while at her devotions.

To summarize: I have not proved Doctor Mensor wrong; nor has he proved himself right. The lesson from our combined experiences is that the thing, whatever it is, should not be operated upon.

I think that both he and we are to be congratulated upon what I might term the intellectual honesty of his presentation. Papers like this which frankly set forth clinical fact in their summation help us to get farther along the road we all are going.

✽

E. W. CLEARY, M. D. (490 Post Street, San Francisco).—I have seen perhaps as many as six cases of painful knee where the x-ray showed a shadow of calcareous deposit or small bony fragment over the external femoral condyle. In all such cases that I have seen, in every instance several weeks had elapsed since the incidence of painful knee before I saw the patient. None showed local edema, but several had localized tenderness to pressure over the area beneath which the x-ray showed the peculiar shadow. All were cases of alleged industrial injury to the knee.

I have never been entirely satisfied with the diagnosis of periosteal tear or chip fracture of the condyle as an explanation of the x-ray picture in these cases, but it has not been my fortune to see any of the cases soon enough after the onset of the condition to have a good opportunity to draw conclusions. I have never cut down upon one, though I confess to a curiosity to see just what the mass was which cast the peculiar x-ray shadow and where it lay in the soft tissues. It would be interesting if Doctor Mensor had told us what were the relations and the characteristics of the calcareous mass in the patient upon whom he operated.

Possibly the pathology in these patients is of a nature similar to so-called subdeltoid bursitis.

We are indebted to Doctor Mensor for directing our attention toward this interesting condition and for the careful detail of his observations and case records.

✽

DOCTOR MENSOR (Closing).—In each of these patients, trauma if present was so minimal as to almost preclude that a fracture could give the findings of increased temperature, leukocytosis, and the other signs of inflammation which were noted. In my opinion, it is rather unlikely that the anatomical facts so lucidly noted by Doctor Watkins could be of much significance because also in this factor it is necessary to get a definite strain on the joint. I think all of us will heartily agree that these patients should not be operated upon.

I, like Doctor Cleary, am greatly interested in the relationship of the x-ray defect and its significance in relation to the bony structure. However, as we operated on our first case under several apparent misapprehensions, we were unable to determine the relation of the characteristics of the calcareous deposit as we hope to do in the future should another case come to our attention.

THE LURE OF MEDICAL HISTORY

COMPARATIVE RELIGIOTHERAPY*

By W. H. MANWARING, M. D.
Stanford University

PART II

DEVELOPMENT OF MEDICINE SINCE THE CHRISTIAN ERA

Greek Medicine at Opening of Christian Era.—This is a composite picture of our ancestral medicine at the opening of the Christian era. To one advanced culture, however, this spiritual wizardry was already obsolete. The Homeric septic devils and antiseptic gods had long since degenerated into abstract concepts,¹⁸ in official Greek medicine, though still retained as lucrative living spirits by Greek charlatans and quacks. By the opening of the Christian era, Greek science had spent five centuries collecting data for a new therapeutic art, based solely on the known and verifiable facts of the material world.

At one stage in the evolution of this new science, each tangible object was analyzed into its hypothetical basic elements. Four elements were postulated: *Earth*, with its hardness, dryness, and coldness; *Water* with its coldness and wetness; *Air* with its dampness and warmth; and *Fire* with its dryness and heat. Blood, for example, was Heat and Water chemically conjugated to form a new unit fluid. At need, this synthetic unit could dissociate into fire to warm human flesh and water to dilute its hardness. All diseases were explained as quantitative errors in one or more of these basic elements, therapy being a logical restoration of normal elemental balance.

This material science, however, was far from being atheistic. Each element was endowed with consciousness. Each obeyed the omnipotent, omnipresent Laws of Supreme Nature. Nature was pictured as a Divine Spirit, though not of anthropomorphic personality.¹⁹

This Divine Spirit also had dominion over certain minor nature gods. All plants, for example, were at one stage of Greek science synthesized under one great Botanical Spirit, and all animals subjected to a unit Zoölogical Will. Human semen, for example, was pictured as inert mineral life. This seminal wax was later vitalized by botanical spirit breathed in by the mother, conferring upon the static jell the vegetative functions of assimilation and growth. As the resultant intra-uterine fungus reached natal size, it was animated by maternally inbreathed zoölogical purpose, supplementing the vegetative functions with animal functions of sensitivity and motility. After birth the human animal gradually acquired

rationality and articulate speech by the inbreathed mentality of Supreme Nature.²⁰

In their practical applications, these spiritual concepts of Greek biology were in marked contrast with the discarded Homeric myths. Omnipotent Nature was not handicapped with human passions, ambitions, weaknesses, jealousies, or inferiority complex. She was above flattery and beyond intimidation, could not be conjured into holy symbols, and from her could be purchased no hygienic indulgence. Pathogenic devils were nonexistent. Pestilences no longer fled from priestly hands. Diagnoses were no longer stamped on sacrificial viscera. Nature's only hygienic co-operation with man was her own inbreathed rationality, endowing him with potential mastery of famine and pestilence.

Replacement of Greek Duties by Christian God.—This cold impersonal nature goddess was in time replaced by anthropomorphic Christian deities. Since Greek medicine denied the existence of anthropomorphic gods, it was an enemy of the Christian faith, which retaliated by regarding Greek materialistic logic and technique instruments of Satan.

The fathers of the church, therefore, logically rejected material therapy.²¹ Eight centuries of laboriously collected anatomical and clinical data were burned in the public square.²² The therapeutic magic of Greek and Roman charlatans was resurrected as the official healing art of Holy Church, the newly available Christian gods being substituted for the previously juggled Homeric myths. The only logical approach to the antiseptic deities was through the Church. The only logical remedies were holy signs, sacred symbols, the laying on of priestly hands, prayer, confession, exorcism, and other Christianized versions of earlier pagan curative rituals.²³

The next thirteen centuries constituted the most important research period of all medical history. Not a conceivable heathen technique that was not tried with the newly available Christian trinity. Wine, water, and oil, ceremoniously vitalized with Christ spirit, were tested, retested and again retested as an agricultural fungicide, insecticide and artificial fertilizer. The flesh of Christ in transubstantiated wafer was tried, retried, and again retried as an antiseptic, antitoxin, cathartic, and abortifacient. Biblical texts were swallowed as logical vermifuges, emetics, and aphrodisiacs.

²⁰ Singer, C., *Short History of Medicine*, Chap. I, p. 33.

²¹ Allbut, C., *Greek Medicine in Rome*, The Fitzpatrick Lectures, p. 402.

²² Singer, C., *Short History of Medicine*, p. 60.

²³ Medicine remained an official function of Holy Church, till "the ignorance and cupidty of monks caused the Lateran Council, under the pontificate of Calistus II, A. D. 1123, to forbid the attendance of priests and monks at the bedside of the sick otherwise than as ministers of religion." Full separation of medicine and theology, however, was not effected till a century later, when Innocent III granted "physicians" (i. e., priests and monks practicing medicine) permission to marry, thus effectively barring them from churchly functions (Pettigrew, T. J., *On Superstitions Connected with the History and Practice of Medicine and Surgery*, p. 33, 1844). The Church, however, officially continued, for at least five centuries, to cooperate with anointed monarchs in ceremonious healings by laying on of kingly hands. "Ye king strokes their faces with both hands, at which instant a chaplain in the formalities says, etc." (Ibid., p. 143.)

* Popular lecture, Stanford University School of Medicine, San Francisco, January 9, 1931. For Part I, see July issue.

¹⁸ Barfield, O., *History of English Words*, Chap. V, p. 79, et seq.

¹⁹ Taylor, H. O., *Greek Biology and Medicine*, Chap. I, p. 9, 1922.

The Holy Ghost was repeatedly broadcast from consecrated chimes as a logical specific for demon-ridden tempests, locusts, and miasmas. Satan-consubstantiated bulls were tortured in the bull-ring to telepathically induce terror in famine and pestilence. The roast flesh of satan-consubstantiated witches was eaten as a logical vaccine against sin, leprosy, and bubonic plague.²⁴ Heroic physicians went so far as to become voluntary servants of Satan that they might gain control over minor pathogenicities.²⁵ Self-sacrificing priests transubstantiated God into His holy symbols, ground Him under their heels, defiled Him with dung, sputum, and urine, even damned Him to Hell for His therapeutic incompetence.²⁶ Until medical leaders were convinced that the omnipotent Christian Trinity could not be harnessed, juggled and exploited by ancient heathen techniques, that the God of Judea meant exactly what He said when He condemned the seed of Adam for all time to gain control over the material world by its own unaided efforts.²⁷

It cannot be overemphasized that this revolt against ecclesiastical healing was not due to altered pathological theory nor to loss of religious faith; but solely to sincere conviction that such adopted heathen wizardries are contrary to Divine Will.

A very humiliated medical profession now returned to a study of the material world that materialistic techniques might be devised to thwart satanic will. Within two centuries Renaissance science had recapitulated the history of Greek philosophy, and had ended by postulating a material body under the dominion of a triune human soul. This medieval soul was a coöperative colony of three major spirits: a botanical spirit in the liver, vegetizing human flesh through the ebb and flow of venous blood; an animal spirit in the heart, sensitizing and motivating human flesh through arterial wind and tide; and a rational, voluntary divine spark in the brain, telegraphing commands to lower flesh through hydraulic signals in hollow nerve fibers.²⁸

This triune medieval soul was slightly modified by the later discovery of circulation,²⁹ by disproof of the hydraulic theory of the nerve impulse,³⁰ by the altered view of respiration,³¹ and the discovery of sensory-nerve reflexes.³² No serious conflict, however, took place with the Renaissance theology till the perfection of the compound microscope. Man was now revealed, not as homogeneous flesh of different textures or weaves,³³ but as an organized world of ten million billion

microscopic animalcule. Either the human soul must be divided into ten million billion micro-souls, as has been done in certain progressive Asiatic religions, or else the soul is but a philosophical abstraction, the hypothetical intangible democratic government of ten million billion soul-less carnal units.

Nineteenth century physiology was wholly unprepared to deal with either postulate.³⁴ For nearly a century "God," "soul," and "divine spark" and all conventional theological synonyms have been obsolete in technical clinical literature.

Is Modern Medicine Atheistic?—Whether or not this absence of theological terminology is a denial of "God" and the "human soul," as certain "fundamentalists" currently allege, can only be judged by biological initiates. Perhaps a partial translation of two or three typical materialistic phenomena into the conventional metaphor of the church may lead them to a truer perspective.

Most food proteins are toxic if introduced directly into living human flesh. Chemists have shown that food proteins are broken down into simpler chemical substances in the digestive tract, and that the end-products of such digestion are relatively nontoxic. Digestion, therefore, is a *purposeful*³⁵ change of potentially toxic food proteins into nontoxic digestive products.

The human alimentary canal is lined with a living colloidal membrane, somewhat similar to the transparent cellophane sheet of commerce, fish-bladder being a closer approximation. Laboratory tests have shown that such membranes will not hold back water, salts, simple sugars, or the final products of gastro-intestinal digestion. They do hold back quantitatively, however, undigested food proteins. The colloidal membrane lining of the alimentary canal is, therefore, a *purposeful* mechanical filter, *specially designed* to allow the absorption of nontoxic digestive products, but to exclude from living flesh undigested and potentially toxic food proteins.

Since the *Creative Purpose* was and is omnipotent, it follows that this gastro-intestinal mechanical filter must have been *planned* without structural defects. Undigested food proteins, therefore, are never absorbed from the intestinal contents, except as a result of injury or erosion of the gastro-intestinal mucosa. Without experimental proof or disproof, this theological *perfectionism*³⁶ was endorsed by nineteenth century physiology. For over half a century it was taught unchallenged in every medical school of the civilized world.

Probably the most striking deduction from theological faith, however, is found in the field of hematology. Nineteenth century biochemistry showed that human blood differs from the bloods

²⁴ Christianized cannibalism continued among Teutonic races till the time of Charlemagne.

²⁵ One outstanding proponent to this technique was Dr. Michael Scot, who prepared for the practice of the therapeutic Black Art by several years' study among Mohammedans and Jews (Singer, C., *Short History of Medicine*, p. 68).

²⁶ For the two best known types of this "disciplinary mass," see: Frazer, J. G., *The Golden Bough*, p. 53, et seq.

²⁷ Genesis, iii, 19.

²⁸ Singer, C., *Short History of Medicine*, p. 121.

²⁹ Ibid., p. 110.

³⁰ Ibid., p. 143.

³¹ Ibid., p. 155.

³² Ibid., p. 207.

³³ Ibid., p. 219.

³⁴ Numerous other biological phenomena are also beyond the range of materialistic hypotheses, the phenomena of consciousness, memory, and hereditary transmission of animal instincts, for example.

³⁵ "Entelechy" (i. e., "indwelling purposiveness") was the Aristotelian synonym for the "human soul" (Singer, C., *Short History of Medicine*, p. 33, 356).

³⁶ The Aristotelian "soul" or "Entelechy" may also be translated as "indwelling perfectability."

of lower animals, a demonstration of human serum-protein specificity being sufficient to send a man to the electric chair. Since God is immutable in His plans and purposes, human serum specificity today must be identical with that of the first created man. For forty years this deduction was unchallenged in medical literature.

Nineteenth century bacteriology demonstrated that convalescent human bloods contain specific antidotes for infections from which patients have recovered. Since human blood is static in its divine perfection, it follows that these specific antidotes must have been contained in the blood or tissues of the first created man, together with automatic mechanisms increasing each antidote in time of need. The tissues of Adam, therefore, contained specific antidotes for diseases and toxicities that man was predestined to meet fifty millions later, when Adam's remote descendants first migrated to America or came in contact with the synthetic toxicities manufactured today by Avery and Landsteiner. Without experimental proof this Calvinistic immunological *foreknowledge* was taught in practically every medical school of the civilized world, the basic axioms for a hundred diagnostic and therapeutic deductions.³⁷

Probably the most striking demonstration of religious faith in so-called materialistic science is furnished by the current atheistic movement in Russia. It has been easy for Soviet leaders to murder priests and dismantle churches, but the elimination of "God" and the "human soul" from biological science has been beyond their power. The assumption that specific antidotes for predestined diseases were not contained in Adamic flesh has but forced Bolshevik immunology to postulate omniscient *primordial antidotal potentials*, a mere shift from Calvinistic immunological predestination to immunological free will or evolutionary self-determination.³⁸

The assumption that hormones are not *purposeful* servants of a unit "soul," has but replaced the previously postulated imperialistic "entelechy" with a republican form of cytological administration, under which communistic regimes common labor cells are raised to an equality with the royal cells of the cerebellum.

In a hundred materialistic metaphors Soviet biology disguises its retained religious faith. In spite of their camouflage as "functions," "tendencies," "potentialities," "syndromes" and "entities," "God" and the "human soul" still remain its basic biological axioms. Russian biology today is the conservative branch of Soviet official atheism.³⁹

The Basic Therapeutic Law.—The last five humiliating centuries have taught nordic medicine one great lesson—the necessity of constant skepticism of its own theories and apparently

logical deductions. Official medicine today endorses no therapeutic logic, however plausible, till it has been subjected to crucial, impartial clinical verification.

The organized medical profession, therefore, has a right to ask the same preliminary research trial of all proposed religiotherapeutic techniques before they are exploited with a technically untrained general public.

Stanford University.

CLINICAL NOTES AND CASE REPORTS

LEUKEMIC BLOOD PICTURE WITH ROENTGEN CHANGES IN THE BONES*

By ROLLA G. KARSHNER, M. D.
Los Angeles

A WHITE male American infant, two years nine months of age, was admitted to the Children's Hospital December 7, 1930, because of pain and swelling of the left forearm, just below the elbow, and a slight persistent fever of three days' duration. Several days previous to the onset of the pain the child had had a slight cold.

Physical examination revealed a tender, slightly swollen forearm, with local heat and no redness. The liver edge could be felt, the spleen was not palpable. The hemoglobin was 45 per cent; red blood cells, 3,000,000; white blood cells, 7850; polymorphonuclears, 15; lymphocytes, 83, the majority of which were immature cells. There was one monocyte and one unclassified cell. The red blood cells showed anisocytosis, achromia, microcytes, macrocytes, and polychromatophilia.

The diagnosis was acute osteomyelitis.

On December 8, 1930, an incision three inches in length was made over the upper part of the ulna, the bone was exposed and three holes were drilled into it. It was reported that no pathological material was encountered. The wound was packed with vaseline gauze and a dry dressing was applied. No cover-slip smear or culture was made and none of the bone marrow was sent to the laboratory for examination. The wound healed by first intention; the child was discharged as improved on December 15, 1930.

On January 6, 1931, the child was readmitted with the complaint of fever and vomiting of three days' duration. Blood had been noticed in the stools. Physical examination showed a pale, well-nourished infant, skin slightly yellow, with hemorrhages into the lobes of the ears and petechiae over the back, shins, and buttocks. The mucous membranes were pale. Numerous small glands were palpable in the cervical, axillary and inguinal regions. Over the scalp were a few tiny, palpable nodules. The heart showed gallop rhythm. There was a soft systolic murmur over the sternum and a thrill in the vessels of the neck. The liver was four f. b. below the costal margin at the anterior axillary line. The spleen was four f. b. below the costal margin, of firm consistency and not tender. A blood transfusion was performed January 10, 1931. The child gradually became worse with continued high temperature ranging from 102 to 106, and died on January 10, 1931.

The Wassermann, Kahn, and tuberculin tests were negative. The urine was negative. The table which is submitted shows the nature of the blood counts.

* Read before the Radiology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

³⁷ Manwaring, W. H., Sci. Month., xxv, 362. 1927.

³⁸ Manwaring, W. H., Sci. Month., xxx, 352. 1930.

³⁹ "There are two schools of philosophy in Russia, one of which is committed to atheism, the other may make room for a possible future theism" (Eddy, S., The Challenge of Russia, Chap. IX, p. 162. 1931).

TABLE 1.—*Blood Counts on Different Days*

	1-6-31	1-7-31	1-9-31	1-14-31	1-16-31
Hemoglobin	34%	30%	30%	30%	28%
Red blood cells.....	1,860,000	2,140,000	1,960,000	1,830,000	1,670,000
White blood cells.....	19,400	18,650	15,300	1,750	1,650
Polymorphonuclears	2	1	1	6	15
Small lymphocytes	97	25	27	28	18
Premature lymphocytes..	.....	68	67	50	48
Lymphoblasts .....	.....	1	2	8	9
Eosinophils .....	.....	.....	.....	1	.....
Basophils .....	.....	1	.....	.....	.....
Monocytes	1	.....	.....	3	.....
Myelocytes .....	.....	.....	.....	.....	4
Unclassified .....	.....	4	3	4	6
Platelets	41,000	57,000	.....	.....	.....
Achromia, anisocytosis, poikilocytosis, macrocytes, microcytes.					

Roentgen examination of all the bones, made on January 7, 1931, revealed periosteal proliferation involving the upper end of the left ulna, beneath which there was some destruction; finely porous destruction at the lower metaphyses of both bones of each forearm; periosteal proliferation about the upper end of the shaft of the left humerus with a large destructive lesion involving the underlying metaphysis. Finely porous destruction of the metaphyses of both humeri, of the ribs, of the bones of the pelvis and of the upper ends of the femora was also noted.

The roentgen diagnosis agreed with the clinical and laboratory diagnosis of a blood dyscrasia, resembling the aleukemic type of acute lymphatic leukemia. Autopsy was denied.

This case is similar in blood, roentgen findings and clinical course to five others encountered at the Children's Hospital in the past few years. Autopsy was performed in four, all showing lymphatic infiltration within the internal organs and bones. In one the diagnosis stands on the records as lymphosarcoma, though no gross tumors were encountered and the clinical, blood and roentgen picture were identical with the others. In another case one pathologist said leukemia, a second called it lymphosarcoma, a third was noncommittal. In the literature were found the reports of two similar instances of bone changes in infants and young children, one designated chronic lymphatic leukemia,¹ and the other reported as myeloid leukemia.² To these I added a third under the title of lymphatic leukemia.³ I am not prepared to defend the diagnosis of leukemia in these cases. Perhaps they were lymphosarcoma.

This brief report has been presented for three reasons. It calls attention to a not uncommon clinical condition in infants and young children in which a blood picture simulating leukemia is associated with roentgen findings in the bones consisting of a finely porous destruction, gross destructive lesions, and periosteal proliferation. Second, it emphasizes the wisdom of heeding an unusual blood count before operating for osteomyelitis. In the third place, it shows the impor-

tance of a roentgen examination prior to operation for osteomyelitis.

510 South Lucas Street.

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AN ANOMALY OF THE UMBILICAL CORD

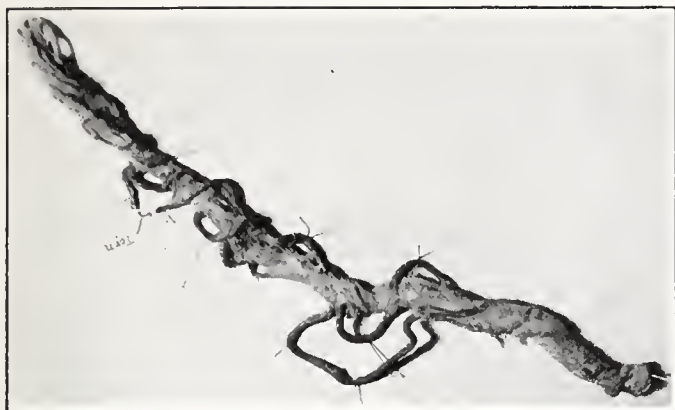
REPORT OF CASE

By F. F. ABBOTT, M. D.
Ontario

LAST July I had a case of death of the fetus three days before birth, due to what appears a very unusual anomaly of the umbilical cord. A search of available literature fails to reveal a similar case. Francis J. Browne, M. D., in the *Journal of Obstetrics and Gynecology* of the British Empire, Vol. 32, No. 1, pages 17-47, 1925, lists twelve different abnormalities with a review of the literature and gives an extensive bibliography.

His list is as follows: True knots on the cord; cord encircling and compressing the child's neck; torsion of the cord; localized constriction of the cord; syphilis of the cord; absence of the cord; localized varicosities; ulceration of the cord; hematoma of cord; cysts of cord; solid tumors of cord (eight cases); and malformed vessels—one artery, no vein, numerous capillaries, jelly of Wharton denser than usual. Capillaries had ruptured here and there, and blood effused in stroma. No syphilis evident.

My case can be listed under malformed vessels, but differs decidedly from the case described by Doctor Browne. In that case there was one



Umbilical cord, showing arteries in festoons and loops.

artery and no vein, the place of the vein being taken by numerous capillaries. The Jelly of Wharton was described as being denser than usual. In my case, Wharton's jelly was very scanty, the probable reason for the anomalous course of the blood vessels.

REPORT OF CASE

Case History.—Mrs. P. B. S., Ontario, California; age, twenty; married. Occupation, housewife. Examination, June 21, 1930. Weight, 235 pounds. Pregnant. Had slight occipital headache.

Measurements.—Anterior spines, 22 centimeters. Crests, 32 centimeters. External cong., 22 centimeters.

Urinalysis.—Negative for albumin, sugar, acid in reaction, and no pus.

False labor occurred about the first of July, lasted twenty-four hours and then ceased entirely.

On the 18th of July, I was called at 9:30 a. m. The patient gave the following history:

About 4 p. m. the previous day, labor pains started and patient passed a little blood several times and was still passing some when seen. The pains increased in frequency and strength during the night. At 9:30 a. m., pains occurred every three minutes. The patient stated she had not felt life for three days. Fetal heart tones were not distinguishable.

Vaginal Examination.—No dilatation. The cervix effaced, placenta not found presenting. The head of the baby is against the cervix in the left occipito-posterior position. The pains continued to get stronger and more frequent, until at 10 o'clock p. m. they were coming every minute or minute and a half and lasting from forty to fifty seconds, with no progress whatsoever in dilatation and no more discharge of blood. The uterine contractions were very strong and, as apparently all of the amniotic fluid had leaked out of the uterus, a podalic version and extraction was practically impossible. This left the choice between high forceps or embryotomy or a cesarean section. It was decided, on consultation, to do a cesarean section.

At 12 midnight a low type of transperitoneal cesarean section, going through the lower uterine segment, was performed. The placenta was in the upper part of the uterus and showed no evidence of having been detached in any part. The cord showed a peculiarity, to be described later. The incision into the uterus was closed. The abdomen was closed in layers, without drainage. The patient's condition was excellent, and she made an uneventful recovery.

The umbilical cord presents a very peculiar condition with the arteries of the cord making festoons from the cord in long loops from one to three inches

in length. One of these loops had been torn and the fetus had bled to death, probably three days before labor began.

In all probability, the baby had caught its toe in one of these loops of blood vessels and had torn the blood vessel.

This case presents several unusual features:

- (1) Anomalous course of blood vessels of cord.
- (2) Involuntary suicide of the fetus.
- (3) Unusual cause of prenatal discharge of blood from uterus.

Psittacosis, or Parrot Fever.—Psittacosis, or parrot fever, is primarily a disease of birds which can be conveyed to persons through more or less intimate contact with recently imported infected parrots, and sometimes by parrakeets, love birds, canaries, and possibly other tropical species. It is, therefore, of especial interest to all bird fanciers.

The symptoms of the disease in birds are not sufficiently characteristic to be diagnostic; hence, the disease in them is usually detected only after one or more human cases of parrot fever have resulted. The birds which usually are responsible for the human cases are those which have been imported recently and usually they also show signs of illness, such as loss of appetite, roughing of feathers, and sometimes cough and diarrhea, although occasionally birds apparently well have served to infect persons as long as eight months after importation. The facility with which the disease is spread from infected birds to man makes it one of the most highly contagious diseases known.

Infected persons usually become sick in from six to fifteen days following exposure and have symptoms suggesting influenza. The onset is sudden, with chilly feeling, intense headache, and fever. A peculiar type of localized pneumonia soon develops. It is largely upon the extent of this pneumonia and the age of the patient that the outcome of the disease depends; it is especially dangerous to persons over sixty years old. In mild cases the initial pneumonia ceases to spread and the fever and other symptoms tend to disappear after eight to ten days. In severe cases, however, the lung becomes progressively more and more involved, and unless the process can be checked death will result, usually in the third week of the disease. When recovery sets in, the physician must guard his patient from getting about too soon, as relapses during the weeks immediately following the return of the temperature to normal occur not infrequently, though they tend to be milder than the original attack.—*Health News*, March 13, 1931.

Maryland Restricts Sale of Methanol Wood Alcohol.—The sale and distribution of methanol wood alcohol will be stringently regulated in Maryland, according to the provisions of the Edmunds Bill which was adopted by the legislature and signed by Governor Albert C. Ritchie, Tuesday, April 7.

The bill prohibits the sale of methanol wood alcohol whether sold for antifreeze or other commercial purposes unless sold in containers bearing a warning label stating that it is a violent poison and cannot be made nonpoisonous and will cause blindness or death if taken internally. Methanol must also be colored to prevent it from being confused with potable alcohol and must contain a substance which will cause vomiting if it is imbibed.

A record must be kept of all individual sales in containers of less than fifty-gallon drums, whether to be used as an automobile antifreeze, paint, or other commercial solvent, and the record must state the date, name and address of the purchaser, and intended use. The penalty for violation of the law includes a fine of not more than \$500 or imprisonment for not less than three months nor more than one year or both.

The bill was endorsed by the Maryland Automobile Club and labor and public health organizations.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

HEMORRHAGIC DISEASES

STACY R. METTIER, SAN FRANCISCO.—The diseases termed "hemorrhagic diseases" or "hemorrhagic diatheses" not infrequently present very definite diagnostic and treatment problems. Confusion between true purpura and other hemorrhagic conditions occurs rather frequently. Purpura is characterized by extravasations of blood into the skin and mucous membranes and is commonly spoken of as a black and blue spot. In one instance it may appear as a symptom of an illness in which a favorable prognosis can be given, and in another as one with a definitely unfavorable prognosis. Since certain therapeutic procedures can influence some of the conditions having purpura or hemorrhage as clinical manifestations, it is desirable to make correct diagnoses and to avoid giving incorrect prognoses.

From the diagnostic standpoint, two general groups of purpura may be designated: one, idiopathic purpura; and the other, symptomatic purpura.

Idiopathic purpura is generally subdivided into the following types:

1. Idiopathic purpura in which there is neither a deficiency of blood platelets nor lack of the other factors which are known to play a rôle in the coagulation of the blood. Purpuric spots in the skin or mucous membranes as a rule are the only symptoms observed by the patient or found on physical examination. Another form of this simple purpura is the type described by Schönlein and is associated with painful joints. Henoch's purpura, another form, is characterized by abdominal pain and may be followed by bleeding from the gastro-intestinal tract. In any patient with true purpura there may be a combination of these various types.

2. The second type of idiopathic purpura is thrombocytopenic purpura hemorrhagica, the morbus maculosus of Werlhof. In this disease there is a marked decrease in the number of blood platelets. This primary form of purpura, especially when chronic, is amenable to surgical treatment in a large percentage of cases. Splenectomy is an effective therapeutic agent in a well-established chronic case of purpura, but may be used as an emergency procedure in a patient whose symptoms have been relieved by x-ray over the spleen and by transfusion during the active stage.

In addition to the idiopathic types of purpura there are those conditions in which purpura occurs as a symptom and these are designated as symptomatic purpura. Some definite etiologic agent or pathologic state predisposes to the purpura. As in the idiopathic purpuras this group is subdivided into two types, *i. e.*, those with and

without deficiency of platelets. Examples of purpura, without deficiency of platelets, are to be found in bacterial endocarditis, cerebrospinal meningitis, miliary tuberculosis, and intoxication from certain drugs, such as quinin and iodids. Purpura with deficiency of platelets is the more common form, and may be found in aplastic anemia, in leukemia, from benzol and arsphenamin poisoning, and in other conditions.

Purpura is to be differentiated from those conditions due to lessened capillary resistance in which extensive subcutaneous, intramuscular, and subpericardial hemorrhages occur. Scurvy is an example of this type of hemorrhagic extravasation resulting from vitamin C deficiency, here depending upon a disappearance of the intercellular substance of the minute capillaries.

The diagnosis of purpura, however, should not be made on a single symptom or sign or on the result of a single laboratory procedure, but by a careful study of the history, physical status, and laboratory findings. It is important to know from an individual who has had symptoms and signs of chronic blood loss whether any other members of the family have such a predisposition or if they have had a tendency to bruise easily. On physical examination a search should be made for ecchymoses, petechiae, telangiectasiae, and jaundice, and particular attention should be paid to determine the presence of enlargement of the spleen, the liver, and the lymphoid tissue. In addition to the routine erythrocyte, leukocyte and differential counts and the hemoglobin concentration, it is important to determine the presence or absence of abnormalities of the blood such as may be determined by the reaction of the leukocytes to the oxydase stain; the number of reticulated red blood cells and platelets per cubic millimeter of blood; the time that elapses before bleeding stops after puncture of the skin; the time that elapses before coagulation of specimens of blood in a series of test tubes takes place, and the character of the clot. In some cases it may be of value to determine the icterus index and the fibrin content of the blood.

The important clinical factors in chronic thrombocytopenic purpura are as follows: It is rarely familial. The spleen may or may not be palpable. The blood platelets are greatly reduced in numbers and the bleeding time is prolonged. The blood clots in normal time but it does not retract, which is in contrast to hemophilia. Anemia usually is not a feature and there may be slight elevation of the leukocyte count.

Purpura is to be distinguished from other diseases with chronic hemorrhagic tendency such as hemophilia, familial hemorrhagic conditions, and hemorrhagic telangiectasis.

JOHN WILLIAM SHUMAN, LOS ANGELES.—The caption means diseases in which hemorrhage is a prominent symptom. Hemorrhage is a very alarming objective symptom. The clinical picture of gross hemorrhage, external or internal, is most graphic, namely, the rapidly increasing pulse, the ghastly pallor, cyanotic lips, air hunger, thirst, and the premonition of impending death. The picture is more vivid if blood is spurting or flowing from a laceration, is being expectorated, vomited, defecated, urinated, or menstruated. Gross internal hemorrhage and visceral purpura are too frequently not diagnosed until "too late." Two factors are always present in hemorrhage: permeability of blood vessel and uncoagulation of the blood.

Purpura, meaning purple, is a medical term ancients used to designate a disease in which small purple patches formed in the skin, mucous and endothelial membranes due to an extravasation of blood. If the hemorrhage was large, like a "black eye," it was called an ecchymosis. We now know that this type of bleeding is a graphic symptom of an underlying disease. It is frequently observed in the newborn from syphilis; in the hemophiliac from an inherited liability to bleed; and in the purpura simplex, arthritica (rheumatica of Schonlein), and the visceral type of Henoch's. These last three items are really grades of the same thing. Once fever was called a disease and had many subheadings. Now we know it to be the result of anything which produces superactivity of the thermogenetic centers. Vicarious menstruation as a belief was exploded when we realized that hemorrhages from nose, gums, lungs, gastro-intestinal tract, and in the skin were symptoms and that only the uterine mucosa menstruates.

Within the past two weeks the writer has noted the following expressions of our subject among his patients: rose spots from typhoid; preagonal purpura on the legs, thighs, and back from malignant endocarditis; and rashes from quinin and iodid. The first two were toxic phenomena, similar to what may be seen in typhus, measles, scarlet, meningitis, smallpox, and many other acute infectious diseases. The other two conditions were also of a toxic nature, similar to what may be seen from belladonna, mercury, snake venom, ergot, copaiba, benzol, and other medicines.

Purpura is a frequent phenomenon in the late stages of the hypertensive cardio-renal-vascular, the cancerous and the tabetic patients. Time will not erase from the writer's memory a patient studied ten days in St. Vincent's Hospital of Sioux City, in the search for the cause of a periodic epistaxis, purpura, and slight hematuria. That patient subsequently went to the Mayo clinics, where the removal of a tuberculous right kidney cured his purpuric complex.

Attention is called to thrombocytopenic purpura hemorrhagica, a subject under recent discussion in the literature, which appears to be due to an overactivity of the reticulo-endothelial cells of the spleen, causing destruction of the blood

platelets. The spleen has, therefore, been especially condemned by some surgeons who advise splenectomy as a cure for the above.

Prognostically petechiae have always been looked upon as a grave symptom. In the newborn, the debilitated, and the senile, this is true.

Rational therapeutics include: rest; encouragement of the patient and of his solicitous comforters; specific therapy along with calcium, arsenic and transfusion in selected instances.

* * *

E. RICHMOND WARE, LOS ANGELES.—It should be borne in mind that hemophilia is a rare disease. The unusual combination of circumstances which permit it to occur in a female has never been definitely established. Practically, therefore, the condition is found in males only, although it is transmitted through the female of hemophiliac families.

There is very little reason for the confusion existing between the various types of purpura and hemophilia. An accurate history should be sufficient to make a relatively certain differential diagnosis between the two. It should be easy to ascertain the characteristic hereditary aspects of hemophilia, which are, briefly, a family with a tendency in the male members to suffer unexplained, prolonged hemorrhages, this peculiarity being transmitted through the females, although appearing actively only in the males. They are not subjects of diffuse purpuric rashes. No characteristic physical signs accompany the disease, except the resultant effects of hemorrhages in various localities. Chief of these are joint deformities which may be severe enough to cause some absorption of bone and ankylosis. Owing to the frequency of severe hemorrhages during childhood, hemophiliacs usually do not reach mature adult life.

No morphological changes are found in the blood, and there is no deficiency in the number of platelets as is found in thrombocytopenic purpura. However, the clotting time is much prolonged, which is also true of Howell's prothrombin time test. Usually there is no change in the bleeding time, and the clot when once formed is firm and retractile. The factor responsible for the failure in the blood to clot promptly, is generally considered to be a qualitative impairment of the circulating prothrombin present in the platelets. This substance, however, appears to be present in satisfactory amounts in the connective tissue cells and juices outside of the blood stream. Therefore care should be used when withdrawing blood from the vein for determining the clotting time. Should the needle not be inserted directly in the first attempt, the value of the test is much impaired. There is no danger in withdrawing blood from hemophiliacs by needle puncture of the skin or vein. With ordinary technique severe hemorrhages do not occur.

Hemophilia is such a distressing and usually fatal hereditary disease that members of bleeder stock are assuming a grave responsibility in marrying and producing children. When the disease

first manifests itself, every precaution should be taken to safeguard the child from injury, cuts, or bruises in his play and work. All bleeders should be typed and should have available appropriate donors of like or compatible blood groups.

When actual bleeding occurs, it is doubtful if any local measures are of much value except the application of cephalin (or kephalin), which represents an unsaturated phosphatin from the pulp of fresh brains and is usually marketed in the form of gauze saturated with the material and preserved in vacuum-sealed tubes. Solutions of this substance have been reported to be effective as a prophylactic when taken by mouth over a period of several months. Repeated transfusions are of proven benefit. They should be given in considerable amounts and preferably by the direct method without the addition of any anticoagulant to the blood. As the life of the blood platelets is thought to be only about three days, it may be necessary to give several transfusions at frequent intervals. All hemophiliacs should be transfused prior to any surgical procedure, even if it be only the extraction of a tooth. Subsequent transfusions may be anticipated to control the expected bleeding.

The Lot of the General Practitioner.—Physicians have been slow to realize that their practice is gradually being crushed to nothingness between two millstones: the one, state medicine; the other, endowed institutions such as medical out-patient clinics. By state medicine I do not mean such a complete system of civil service as is advocated by Doctor Haigh, but rather the gradual (and even more rapid) extension into the field of medical practice of the State Department of Public Health ("and Disease"?). Cancer clinics, tuberculosis clinics, rheumatism clinics—next in line will be heart clinics, diabetes clinics, anemia clinics, thyroid clinics, etc. These clinics are being put through so cleverly by the Commissioner of Health, always in response to an alleged "public demand," that they are upon us before we know they are started. How many physicians were present at the recent hearing of the Commissioner of Public Health on the institution of rheumatism clinics by the state? Exactly none.

The endowed institutions, sponsored and supported by millionaires with much surplus money, are also increasing by leaps and bounds and thus represent the other millstone which is gradually crushing the much maligned practitioner. The large number of millionaires is resulting in the formation of one institution after another. These may compete with one another for patients, and in the eagerness for numbers, patients are being admitted not only from the poor stratum of society, but from the middle class.

The practitioner should become mindful of these millstones. The medical firing line should be against the present extension program of the State Department of Public Health. If rheumatism clinics are not stopped now, we will have more and clinics of various types. Again, if we are not mindful of dispensary abuse, it will increase so that the only practice will be among the rich, and a relatively few doctors can take care of that.

The writer urges that groups of physicians throughout the state organize themselves for the purpose of combating these evils. If this is done, possibly the Massachusetts Medical Society will awaken to what is going on and will strive to coöperate and mediate between the state and the practitioners.—William Dameshek, M.D., in the *New England Journal of Medicine*, 204:403, 1931.

Hobbies of Medical Men.—Anyone who has ever scanned closely a lovely vagrant golden butterfly poised, on a June day, above an alabaster lily cup has felt the reason why the classic Greeks chose this lovely insect as the emblem of the soul—the Psyche. Those who knew best the late Dr. William Barnes of Decatur, Illinois, busied with the multifarious material duties of a neighborhood physician, can understand how he found rest indeed in his avocation of collecting butterflies.

Scientists the world over paid homage to Doctor Barnes and his butterflies. He was not "building a better mousetrap," this great man in a small community, but he was building up what is recognized as the greatest collection in existence of North American lepidoptera.

"Willy" Barnes was only five years old when he first began to collect flies and insects. He loved them for the magic beauty of their wings, their gossamer texture, their brilliant eyes. Later butterflies began to allure the dreamy, poetic child. At Harvard University, where he took his B. S. degree in 1883 prior to entering Harvard University Medical School, the young man had the great good fortune to come into contact with the great Agassiz. From this acquaintance, among other things, the young man learned the value both of making a collection of insects and of having it arranged systematically. After receiving his sheepskin in 1886, Doctor Barnes served an internship in the Boston City hospital, going thence to Europe for postgraduate work at Heidelberg, Munich and Vienna. All this while he managed to keep on collecting butterflies. In later years he found it necessary to have others do much of the actual work for him, but he spared himself neither trouble nor expense to have brought to him specimens from many remote places of both North America and Europe. Many a man has been sent to far places to bring back certain types.

Naturally enough the analogous collecting and preservation of flowers and especially of wild flowers was another hobby of Doctor Barnes' and here, too, he was considered an authority.

Before his death Doctor Barnes' collection had grown so large and so valuable that for the housing of it, the physician had constructed a special fire-proof addition to his residence in Decatur. Further, since his passing, a curator has been retained to look after the collection and to file new specimens. Scientists from all over the globe call at the Barnes museum as it were to view his wonderful collection with its more than 500,000 specimens of butterflies and moths. June 13, 1930, President Hoover requested from the House an appropriation of \$50,000 to enable the secretary of agriculture to purchase this collection, for obvious and scientific reasons. Government experts are said to value the collection at \$1,000,000.

This is not the first time that the collection has been heard of in the national capital. The butterflies made a flying trip into politics in 1922 when Allen F. Moore of Monticello, then the congressman from that district, introduced a bill for the purchase of the collection for a total of \$300,000 and an additional \$10,000 for the cost of transportation of the collection to the Smithsonian Institution at Washington. This bill was never passed.

Some three years ago an effort was made to purchase this collection, and on behalf of foreign interests the *St. Louis Post Dispatch* carried an article commenting on the necessity for having some American trust, such as the Rockefeller Foundation, purchase the collection. About that time it was further stated that the Barnes collection is so complete and protean that it should be used as a basis for a national collection and sent to the national museum.

Doctor Barnes died May 1, 1930. Disposition of the collection made by this capable physician and excellent citizen is not as yet announced.

Doctor Barnes was a fellow of the American College of Surgeons and a member of twelve influential scientific and entomological associations and societies.—*Illinois Medical Journal*, September 1930.

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Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this journal.

Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS*

ON SOME CALIFORNIA MEDICAL ASSOCIATION INTERNAL ADMINISTRATION PROBLEMS

Papers for the Next Annual Session.—These vacation months offer good opportunities in which to think over prospective papers for the 1932 annual session of the California Medical Association. With fewer society and staff meetings, there is greater chance for quiet thinking and study. Applications for places on section programs should be made at an early day to the section chairmen or secretaries, whose names and addresses may always be found on advertising page four of every issue of CALIFORNIA AND WESTERN MEDICINE. The section officers will welcome early applications.

The California Medical Association maintains the following twelve sections: Anesthesiology, Dermatology and Syphilology; Eye, Ear, Nose and Throat; General Medicine; General Surgery; Industrial Medicine and Surgery; Neuropsychiatry, Obstetrics and Gynecology; Pathology and Bacteriology; Pediatrics; Radiology (including Roentgenology and Radium Therapy); Urology. In addition, at next year's annual session a section on medical economics will probably be instituted. As soon as the Council appoints the

* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column which follows.

acting officers of that section their names will also be printed in the section roster.

* * *

Annual Clinical and Research Prize Papers.—In the list of standing committees which is printed on advertising page two of every number of CALIFORNIA AND WESTERN MEDICINE, is a footnote concerning the prizes which are annually offered by the California Medical Association for the two best papers on clinical or research topics. In addition to the cash prize of one hundred and fifty dollars, a certificate of award is given. In many eastern states such prize offers would in all probability bring into being considerable competition. The officers of the Association hope that less diffidence will be displayed in next year's California Medical Association competition than has been evidenced during the last two or three years. Under certain conditions, papers may be read at scientific sections and still be submitted for prize registration and consideration. The names of all contestants are held confidential, publicity being given only to prize winners or honorable mention contestants. Application to the Association Secretary will bring complete information.

* * *

The CALIFORNIA AND WESTERN MEDICINE Leaflet, "Suggestions to Authors."—All members of the California Medical Association who contemplate writing papers for the state or a county medical society, and who have not received a copy of the CALIFORNIA AND WESTERN MEDICINE leaflet, "Suggestions to Authors," should write to the central office of the Association for a copy of the same. This leaflet, originally compiled by the former editor of CALIFORNIA AND WESTERN MEDICINE, the late Dr. Wm. E. Musgrave, and a revised edition of which was brought off the press in May of this year, contains many suggestions worthy of perusal by every member who contemplates writing a paper. Such a leaflet, insofar as it presents the experiences of others, may be of real service to all who write. It may be had by any member of the California Medical Association for the asking. Write to the central office of the Association, requesting a copy.

* * *

Annual Session Papers Intended for CALIFORNIA AND WESTERN MEDICINE Should Not Be Too Technical.—The June CALIFORNIA AND WESTERN MEDICINE, page 430, contained a report showing how large a number of unpublished papers from previous years were still in the hands of the editors. An earnest effort is now being made to bring all such off the press as rapidly as possible. This over-plus of material has come to the official journal because of the larger number of scientific sections in the Association and because some of the sections have had a considerable larger number of papers than other sections. This year it has been necessary for the Committee on Publications to return to a number of speakers at the San Francisco annual session the papers which

were there read, with the suggestion that they be submitted to medical journals of a more technical nature than CALIFORNIA AND WESTERN MEDICINE. On this point it may be permissible to quote from the CALIFORNIA AND WESTERN MEDICINE leaflet:

"Subject Matter.—Any paper is acceptable upon any phase of the broad subject of health betterment which, by reasonable interpretation, is adjudged useful to the best interests of the medical profession and of the public. Thus, contributions upon specialties that contain matter of value to *all* physicians, regardless of limitations in practice, are acceptable, but those by specialists for specialists should be offered to appropriate special magazines. . . .

"Reading Audience.—It is well for authors to bear in mind, as the editor is required to do, that CALIFORNIA AND WESTERN MEDICINE is a general medical magazine. Probably more than 75 per cent of its physician readers are in general practice, and the other 25 per cent are divided between more than twenty specialties.

"Specialists, in preparing their articles for publication, should bear this fact in mind, and submit to CALIFORNIA AND WESTERN MEDICINE copy dealing with those phases of their specialty that ought to be interesting to the majority of physicians. The more limited and more highly technical articles, written primarily for an audience made up of specialists, should be submitted to special journals and not to CALIFORNIA AND WESTERN MEDICINE.

"It is extremely important for all authors to remember that our magazine is extensively read by technicians and workers in various fields of health and by some thousands of nonmedical readers, including some who are constantly looking for something that may be quoted in antisocialistic propaganda."

* * *

Program Committees Should Plan for the Fall Meetings.—Sometime soon, the president and secretary of every component county medical society of the California Medical Association should hold a conference meeting with their respective program committees to discuss the scientific programs for the September to December meetings. Not only should local members who can bring messages of worth to their fellows be selected and urged to write on topics of interest, but the lecture roster of the California Medical Association as printed in CALIFORNIA AND WESTERN MEDICINE should be scanned for guest speakers and subjects. (See October, 1930, CALIFORNIA AND WESTERN MEDICINE, page 759.)

Case Reports.—A little special thought and preparation at this time may make a great difference in the standard of papers which will be presented this fall. Well written case reports are always of real interest and nearly always bring out good discussions.

Revision of Constitution and By-Laws.—The officers might also read the constitution and by-laws of their respective societies; making notations concerning seeming deficiencies. Such could be discussed at one of the fall meetings. The constitution and by-laws of the California Medical Association (copies of which may be had through the central office of the Association) contain many provisions of suggestive value, particularly so in the matter of disciplinary pro-

cedures. The text of every county society constitution and by-laws should be most explicit on such matters. Otherwise local misunderstandings or animosities may arise through hasty or improper action, with even the possibility of legal entanglements.

Medical Economics.—The many problems of medical economics which today confront the medical profession are most worthy of discussion. If these economic matters are not talked about it may be assumed that they are not often thought about; and if not thought about, there is danger of outsiders, laymen and others, seeking to thrust their viewpoints upon the people, largely at the expense and to the detriment of the medical profession. Organized medicine as represented by county medical societies should therefore provide for ample time and full discussion of these important economic problems. These tense economic times which all peoples are now-a-days experiencing, may be made to be good reminders to all of us to keep our feet firmly grounded in economic matters. Altruism and idealism are things which all should desire, but they should not dominate the picture. For, lest we forget, physicians and physicians' families must also have money in order to live properly.

Social Features.—The social gatherings which in recent years have become a real part of the meetings of many smaller county societies, are worthy of trial by county units which have not yet inaugurated such. The need for such get-together meetings is as important, yes, even more important, for our larger than for our smaller county societies, where all members constantly contact with one another. In several of these larger communities, county society sections or independent medical organizations have almost specialized on such social features at meetings. Thus there is danger of cliquishness developing in such larger county units if no effort is made to let all members have the opportunity of meeting one another. If in small communities members can meet in clubs or hotels, for suppers preceding their meetings, it should be possible for the same plan to be instituted in the larger county societies. All that is necessary is attention to details in arranging such informal suppers at modest price, sending out the proper notices and of presenting diversified and live programs. If the scientific programs have medical and economic topics interspersed, the discussions are apt to be both general and good. It is hoped that the officer members who have these responsibilities will study their local problems in these matters and make an effort to take some of their meetings out of the dead or innocuous class. No better groundwork for concerted and unified action can be developed than that which is based on mutual understanding and kindly regard. When a medical society fails in these things, then no matter what its size or what the nature of its scientific papers, it may be said that it fails to measure up to the proper standard of efficiency so far as organized medicine is concerned.

**OSTEOPATHIC UNIT OF LOS ANGELES
COUNTY GENERAL HOSPITAL—NO
LONGER UNDER THE MEDICAL
SUPERINTENDENT**

Los Angeles County General Hospital Hearing Comes to End: Actions Taken.—The controversy which during the last several months has been waging on the Los Angeles County General Hospital has been commented upon in this column in the last three numbers of CALIFORNIA AND WESTERN MEDICINE. The public hearing which was held finally came to a conclusion on June 18. On July 8 the Board of Supervisors announced its action thereon. A brief excerpt from the Los Angeles Times which practically epitomizes the situation, so far as the medical profession is concerned, is as follows:

"The controversy which has been waged for months around Dr. Neal N. Wood, superintendent of the General Hospital, was terminated yesterday by the Board of Supervisors when he was removed as the head of the institution and made medical director of the institution, with the exception of the osteopathic unit.

"All charges of incompetency against Doctor Wood were whitewashed by the board. However, the supervisors voted unanimously to turn over to the grand jury all evidence produced at the public hearings wherein accusations against the doctor were aired. This, it is asserted, was requested recently by the investigating body.

"Mr. Norman R. Martin, who organized the County Welfare Department in 1915 and later was superintendent of General Hospital from 1917 to 1923, was appointed executive superintendent of the institution. . . .

"Martin appointed Doctor Wood as superintendent of the hospital in 1921. He also appointed Harri-man to the office at the County Farm. . . .

"A resolution framed by Supervisor Thatcher, agreed upon at a lengthy secret conference of the supervisors yesterday morning, brought the strife over hospital and welfare department to an end. It was adopted in an open meeting of the board without comment. . . .

"Supervisor Thatcher's resolution, which settled the controversy, carried eight paragraphs as follows:

"1. That the Board of Supervisors of Los Angeles County hereby expresses full confidence in the integrity and ability of Dr. Neal N. Wood, and all charges against him are hereby dismissed.

"2. That the general superintendency be placed as provided by county charter under the superintendent of charities.

"3. That the superintendent of charities be instructed to appoint Norman R. Martin as executive superintendent of the hospital with full authority, approved by the superintendent of charities, to direct the activities of the hospital.

"4. That Dr. Neal N. Wood be made medical director of the hospital except Unit No. 2 (Osteopathic Unit), which is to be placed under the executive superintendent. Dr. Neal N. Wood to be authorized to act as adviser to the architects until the new unit is completed." . . .

* * *

The Major Changes Which Were Made.—Thus came to an end a controversy concerning the largest of the county hospitals of California, which day after day had received much space in the metropolitan press of Los Angeles, and which was of very considerable importance to organized medicine.

The resolutions which were adopted and of which four of the items are above quoted, bring out several facts of special interest to the medical profession:

One—Dr. Neal N. Wood remains in the hospital, but only as medical director of Unit No. 1 (general medical and surgical), plus Unit No. 3 (psychopathic), plus the new sixteen-million-dollar "acute unit" which is still in course of erection. Dr. Wood is also to be adviser to the architects for this new unit.

Two—Mr. Norman R. Martin, the new executive superintendent or business manager of the entire hospital, was in charge of the Department of Charities and of the County Hospital from 1915 to 1923, when he resigned to engage in banking business. Mr. Martin, who returns to his old position in the institution, is a very able executive and made for himself a most creditable record during his former superintendency.

Three—The osteopathic unit (Unit No. 2) of the hospital, around which so much controversy has waged in the last ten years, in particular because the American College of Surgeons has objected to giving the Los Angeles County General Hospital its rating sanction (so long as the osteopathic unit was supervised by the medical superintendent), is now divorced from the remainder of the hospital.

* * *

Separation of the Osteopathic Unit Pleasing to the Non-Sectarian Profession.—This divorce or separation of the osteopathic from the medical units is a something to which few practitioners of non-sectarian medicine will take exception. Years ago the members of the Board of Supervisors saw fit to establish such an osteopathic unit, and that was no doubt their legal right. When that was done, however, there was created a condition of too intimate contact with the general medical and surgical units, which, having staffs of non-sectarian physicians and surgeons, led to one situation after another, all tending to make professional conditions worse than better. It is a relief, therefore, that the two units are now separate and that each can work out its own destiny in absolute independence. In taking that action, the Board of Supervisors did something that has the full sanction of the non-sectarian medical profession throughout the length and breadth of California. Time will no doubt demonstrate that it was an action wisely taken.

HOSPITAL INTERNS AND CASH STIPENDS

A New County Hospital Problem.—At the time of this writing, one of the problems which the Board of Supervisors of the County of Los Angeles has under consideration is whether or not interns shall receive cash stipends. This matter was made an issue when the medical superintendent of the hospital, Dr. Neal N. Wood, recently sent a letter to the Board of Supervisors

containing a recommendation that the cash stipends to interns and student nurses be discontinued.

The Los Angeles County General Hospital has a staff of some one hundred and ten interns, each of whom, in addition to his maintenance (room and board with a bookkeeping value of forty dollars), also receives during his first year of internship a cash stipend of twenty dollars a month. In the second year of internship this is increased to thirty dollars a month.

* * *

Executive Board of the Attending Staff Did Not Approve Recommendation to Take Away Stipends.—The recommendation which the medical director made on his own responsibility came up for consideration at a subsequent meeting of the Executive Board of the Attending Staff of the hospital. The Staff Board voted that the recommendation of the medical director did not have its approval. The Board of Councilors of the Los Angeles County Medical Association also went on record as not approving Dr. Wood's recommendations.

* * *

Pro and Con Reasons Put Forward on the Question.—It was the implied contention of the medical director that more efficient service was rendered by interns when they did not receive such cash stipends and that the standard of professional service in the entire institution would be improved if no such cash stipends were paid. Presumably, a similar line of argument applied to the student nurses.

The executive board members who held to an opposite viewpoint contended that they could not understand how such a small monthly stipend would make for poorer service by interns. Further, that after years of heavy expense in liberal arts and professional education, the services rendered by interns entitled them to small stipends such as above noted, if the institution had the means to grant the same. To many of such interns such small stipends meant much in relieving them of the necessity of asking parents for pocket money. Or if they desired and their means were limited, the stipends so received, if saved, could form the basis of little nest eggs for the first days of private practice. In Los Angeles, where many interns have come from considerable distances, such stipends could help defray costs of transportation.

As regards the student nurses, it is true that these apprentices receive their professional education from the hospitals; but it must be conceded that they also do much work of almost menial nature, which, even though they may have assumed the obligations to do such service in taking up the study of professional nursing, would seemingly entitle them to some slight cash stipend. To many of such girls such small cash stipends received while in training mean very much. In a pocketbook that would remain empty, even a small amount of silver seems large and attractive.

Such in brief is this new problem that has come to the front in one of our large county hospitals. Those who went to the defense of the interns and nurses felt, in part, that these young people were not in position to fight for themselves and that it was incumbent upon others to secure for them a fair hearing. What action the Board of Supervisors will take on the question is not known at the time this copy goes forward to the printer.

COMMENT ON THIS AND THAT

Preventive Work and Investigations in Ophthalmology.—All who wish to observe, should be able to notice that the altruistic spirit of the medical profession finds expression, not only in the kind and efficient service of thousands of physicians who care for indigent fellow citizens in the daily rounds of private practice, and in the financially non-remunerative services rendered in clinics and hospitals, but in the movements aimed to bring home to citizens, in the largest and best sense, a knowledge of preventive medicine.

Tuberculosis may be said to have been the human scourge which in the last few decades has been the recipient of an educational propaganda so efficient that the mental attitude of hundreds of thousands of people toward that disease has been changed. More recently the battle against cancer has come to the front, and a like change in psychologic viewpoint may be noted.

In all phases of medicine, however, the physicians who specialize are ever to be found among the pioneers who blaze the way for new and more effective methods of attack in their respective fields of endeavor.

Take, for example, diseases of the eye. At the recent White House Conference on Child Health and Protection, the report which was made for the National Society for the Prevention of Blindness mentioned several recent lines of investigation. Among such might be cited the work in glaucoma, the "black beast" of ophthalmology. The Massachusetts Eye and Ear Infirmary and Harvard University Medical School are doing notable follow-up work in their studies of patients suffering from this rightfully dreaded affliction.

Trachoma, that other eye disease which in Egypt, Europe, and even in our American commonwealths (as among the pure American mountain stock of states like Kentucky, and among the reservation Indians) leaves behind it a trail of suffering, impaired sight or blindness, is being featured for special attack through a fund of a quarter million dollars placed at the disposal of Washington University of St. Louis.

In days gone by it was the exception rather than the rule for industrial establishments and organizations to insist that employees must protect themselves from eye injuries which could cause impairment or loss of sight. With the advent of industrial compensation laws (and of protection policies the premiums of which were

largely based on permanent disability ratings), a change of attitude early became noticeable. Consequently we witness today a "Program for 100 Per Cent Eye Protection in Industry."

And in our schools, as in measures aimed to aid the deaf and the hard of hearing, so also sight-saving classes designed to conserve the sight of school children are becoming more and more a part of accepted school health and development programs.

The medical profession may take just pride in the places which its disciples are taking, not only in the discovery of new facts concerning human diseases, but in the generous spirit in which this knowledge is broadcast so that citizens everywhere may benefit through such advances.

* * *

"Healthmobiles" of the Los Angeles Department of Health and Corrective Physical Education.—The Department of Health and Corrective Physical Education of the Los Angeles School District has made for itself a distinct place and reputation. The Office of Education of the United States Department of the Interior recently called attention to the two clinics on wheels, the "healthmobiles," which were designed by the director of the Los Angeles Department, Dr. Sven Lokrantz, to bring health service to the children of schools not advantageously located for utilization of clinics in the city proper. Each healthmobile is equipped, among other things, with a full dental office so that necessary work may be done for children whose parents do not have the means to pay for such professional service.

One of the problems which early in his work came to the attention of Dr. Lokrantz, was that of rendering adequate service to those children of outlying schools in the geographically very large Los Angeles school district, who needed help and guidance in matters physical, but who came of families of such slender material resources that the children could not be sent to physicians in private practice or to clinics. The healthmobiles were one of the means through which Dr. Lokrantz attempted to meet this problem. Sweden, among European nations, has recently instituted such a system.

* * *

On the History of a Recent Cultist Group.—One of the large metropolitan newspapers of California has for years, as one of its Sunday magazine features, published a "Care of the Body" column, the editor of which is a doctor of naturopathy. The nature and standing of the column may be best attested by the kind of advertisements which flank its every Sabbath appearance. Those advertisements tell the real story.

A somewhat recent opening article in the June 7 issue was captioned, "The Rise of Chiropractic," the same caption being also the title of a book which was under review. The naïveté or what not of some of the paragraphs may justify

the review comments to partial quotation. Readers of CALIFORNIA AND WESTERN MEDICINE are of course entitled to place their own evaluation on the quoted statements, which follow:

"We have had chroniclers galore who tell us about the great men of medicine—Aesculapius, Hippocrates, Koch, Ehrlich, Metchnikoff, Pasteur, and others. We have had chronicles of the life of Andrew Taylor Still, the founder of osteopathy.

"Few, indeed, have been the histories on chiropractic, a relatively new science, less than a half century old—yet which has found such a tremendous place in the treatment of the illnesses of the world.

"California contains one-fifth of the chiropractors of the country and it is therefore fitting and proper that the history of chiropractic should be written in this state by a Californian and published by a California house. . . .

"The book is well written and easily read. It gives the status of the law in every state of the Union as it relates to chiropractic and should do much toward overcoming the latent prejudice of ignorance that our medical brethren so love to cast on the drugless groups, especially on the chiropractors.

"The lay person reading the book will learn that the training and education the licensed chiropractor receives is fully on a par with the training of any medical man in the country." . . .

Is it any wonder, with press and radio publicity such as the above, especially of the glaringly inaccurate statements such as the last paragraph quoted, that a host of humble citizens are bewildered in choosing their doctors, when such propaganda is put forward as seemingly authentic and with the sanction of one of America's well-known newspapers?

* * *

In the opening paragraph of this column was mentioned the glaucoma studies being carried on at the Massachusetts Eye and Ear Infirmary and at Harvard University. In all civilized countries the keenest brains in ophthalmology have given of their best in an effort to permit man to be victor over glaucoma and with far from satisfactory results. Note now, how the naturopathic editor of the large metropolitan daily, who was referred to above, in his column of July 19 disposes of the subject in reply to a question sent in by one of his readers:

"Question: Can glaucoma be cured? If so, by what method?

"Answer: Glaucoma is an ailment in which the eyeball tends to enlarge and swell and ultimately blindness occurs.

"I know of no method of cure as established by the allopathic profession. The allopathic doctor invariably sends the patient to a surgeon who, in turn, recommends the removal of the eye on the theory that by doing this he prevents infection from traveling to the undiseased eye.

"Confronted with the alternative of the loss of one eye as against two, the patient acquiesces.

"The eye is removed and a glass one substituted.

"This is the usual history in the average case of glaucoma.

"In my own work I have had only a few cases and all I can report is the effect of each. . . .

"There have not as yet been enough data gathered on natural methods in the treatment of this very serious disease. Nevertheless, I am firmly convinced that whatever hope there is for the cure of the ailment lies exclusively in the hands of the drugless profession."

Readers of CALIFORNIA AND WESTERN MEDICINE can draw their own conclusions from the above. One is much impelled to say, "What price, newspaper cultist health column propaganda?" Unfortunately, it is the lay citizens who pay the price.

* * *

The Family Doctor.—By way of contrast to the above may be quoted an editorial which was printed in the June 25 issue of the Los Angeles *Evening Express*, and entitled, "The Family Doctor." It is refreshing to read so wholesome a tribute from the pen of a lay writer. It was the *Express* also which printed the very temperate editorial on "Education of Lawyers" which was excerpted in last month's CALIFORNIA AND WESTERN MEDICINE (page 52). The editorial on "The Family Doctor" follows:

"Specialists in medicine as in other professions and callings have their place, their useful work to perform, and in the modern social organization are indispensable. Nevertheless, laymen who read what Dr. E. Starr Judd, president of the American Medical Association, says about the family doctor, that this reliable old friend should remain the foundation of medical service, will be pleased. Many of us long have felt it was time somebody in authority spoke up for the family doctor.

"He knows every member of the family. He can tell at a glance if any dosing need be done, or if a rest, a change of scene, or just a good talking to will straighten out what may be the matter. He is the wise counselor, the trusted friend and confidant. He rejoices with us in time of happiness and consoles us when sorrow enters the home.

"Some who have spoken for the family doctor have said that in reality the specialist has no knowledge which he does not possess. That probably is not so in all cases. Other things being equal, the man who has made a special study of some organ or function of the body ought to and no doubt does know it and its ailments and how to treat them, better than a general practitioner.

"The family doctor often sends patients to a specialist; as often as not, however, because he knows it will ease his mind and stop the patient from worrying.

"And for that very reason the family doctor is indispensable. He knows the mind as well as the body of each member of the family, and knows when for their own sake it is best to humor them."

* * *

Modern Civilization Makes for Poor Teeth and Better Dentistry.—The softening influences on the development and tone of our physical bodies, as induced in part through what one might well call the relatively luxurious living of our modern civilization, can hardly be denied. As an example of what hardy and rugged living will do for a race, the splendid teeth of some of the semi-civilized peoples, such as the Eskimos, who must chew their foods well and who, in spite of having no dentists, present teeth formations of splendid standard, are not infrequently referred to. Such peoples, at least as regards mastication, are supposedly examples to imitate.

The thought suggests itself that if such a contention or belief ever became well established in lay minds, and through lay press publicity was

accepted by a large number of citizens, then one might look forward to the time when in addition to our numerous present-day pre-prepared breakfast and other cereal foods, it might be possible to purchase from up-to-date food purveyors all-day bone or rubber suckers which could aid in the development of teeth such as are possessed by Eskimos. Nevertheless, if such a day ever does come, it is more than possible that our colleagues of the dental profession will continue to find dental deficiencies in amounts sufficient to keep all of them as busy as ever.

Socialized Medicine in Russia.—Medical practice, like most other things in the Soviet Union, is very largely socialized. There is little private practice, and private hospitals are few, small, and rapidly diminishing in number. The great majority of Soviet doctors are state employees, working at fixed salaries.

That this socialization of medicine does not always work out very satisfactorily in actual life was shown when a brigade of volunteer investigators from the official organ of the Moscow Soviet, *Rabochaya Moskva*, made a flying survey of the medical institutions of Moscow and its environments. The first point that attracted the attention of the investigators was the extreme overcrowding of the hospitals and its accompaniment; the failure in some cases to render medical aid when it was needed. This last factor increased the number of fatalities. In the large Botkin Hospital 40 per cent of the deaths take place during the first five days after admission, "mainly," according to the investigators, "because the patients were not received into the hospital in time."

The report also contains the statement: "Patients who require surgical aid are in the most lamentable condition. A month and a half may pass before the patient obtains a bed in the surgical department."

The number of cases in which medical aid is refused in hospitals is increasing. One hospital reports a growth in this connection from 1540 cases in 1928 to 3000 in 1930, and another from 625 in 1928 to 1000 in 1930. In many cases persons suffering from such infectious diseases as erysipelas, mumps, measles, and typhoid fever are treated at home, and the investigators declare that "unquestionably the lack of isolation of such patients, in view of the present overcrowding, is one of the causes of the spread of infectious diseases among the population."

Queues form in medical dispensaries, as well as in front of shops which are selling products of which there is an inadequate supply. In many cases hours must be spent in these queues before treatment can be obtained. Red tape accentuates the difficulties of making the existing equipment serve all the applicants: it was found that the doctor must write out six separate slips for every patient whom he receives. It was estimated that the doctor had to write out two hundred such slips every day, with a consequent loss of two or two and a half hours.

The first-aid section of the Moscow Health Department was found to be in a sorry condition because it had only six automobiles to serve a population of about three millions. Patients must sometimes wait for weeks before they can be transported to a hospital. Another difficulty has come up in this connection because public taxicabs have been used to carry patients, and it is feared that the latter may become carriers of infectious diseases.

Preventive home treatment is made more difficult because such comparatively simple medicines as cod-liver oil, camphor oil, iodine, and quinine are sold, if at all, only on a doctor's prescription, which is given only to a person who is already sick.—*The Observer* (England), January 18, 1931.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Brucella in Commercial Milk Supplies.*— Although extensive investigations have been carried on, and are being carried on, in California, on the incidence of undulant fever organisms or infection in dairy herds, relatively few investigations have been made on commercial milk as it reaches the consumer.

The results herein reported, although wholly negative, may be worthy of brief record.

The milk supplies of two areas were investigated, one urban and one rural, during the winter and spring of 1930. Samples were purchased directly on the market in San Francisco and Oakland at weekly intervals for four weeks. Each weekly set consisted of milk from each of four chief producers of certified milk, with two pasteurized milk samples, and one sample of goat's milk, on sale, pasteurized and bottled in this section. Thus, a total of twenty-eight samples were tested from the bay region. Samples from a rural district came from a town with a population of about two thousand in the Sacramento Valley. The town was supplied with raw uncertified milk from four producers. Samples[†] were purchased, packed in sawdust in thick balsa-wood boxes, and shipped. They were received within twenty-four hours in excellent condition. Each producer was represented weekly for four weeks, in all sixteen samples.

Tests were made of the milk as soon as samples were received. Milk in fifty cubic centimeter portions was centrifuged, cream and sediment mixed, and guinea-pigs were injected intramuscularly in one cubic centimeter amounts. In the urban samples, four pigs were used on each of the twenty-eight samples. With rural milk, six pigs were used per sample, two with an undiluted mixture of the cream sediment, two with a 1:100 dilution, and two with a 1:10,000 dilution. Thus 112 pigs were observed on urban, and 96 pigs on rural supplies. Routine plate counts were made of the milk as received.

Heart punctures were made on all animals at the time of inoculation and again at death for agglutination tests of the serums. No positive reactions were observed.

Animals were chloroformed after two and one-half (urban) or one and one-half (rural) months, and were posted and cultured immediately, using spleen specimens on liver hormone agar slants in duplicate, one partially sealed, and the other left unsealed. Cultures were incubated for at least ten days.

*From the department of bacteriology, University of California Medical School, and the Hooper Foundation, San Francisco.

†Thanks are due Dr. Monica Stoy Briner for her interest in procuring and shipping these samples.

Neither series of animals showed any evidence in gross pathology or in culture of *Brucella* infection. The work was performed during a series of studies involving guinea-pig inoculations with virulent cultures. The picture of infection in animals from the same stock and ample evidence of positive cultures on identical medium were thus at hand. This method of isolating *Brucella* organisms from milk is generally considered to be adequate. It would hence seem that *Brucella* were not present with any frequency in the milk supplies tested at the time of the investigation.

Plate counts of raw certified, pasteurized, and goat's milk in the bay region supplies were usually around 500 per cubic centimeter, and rarely exceeded 1000 per cubic centimeter. This is consistent with health-department tests, and is supported by the fact that no animals died due to infection.

Plate counts of rural milk samples varied greatly, from less than 1000 to 21,000 per cubic centimeter, with perhaps a usual count of around 5000. By direct culture and by animal tests pyogenic cocci were noted. Hemolytic and green-producing streptococci, and hemolytic staphylococci were noted in all four milk supplies. Death of some guinea-pigs occurred within a few days of inoculation. Necropsy showed various types of infection, abscesses, and involvement of the thoracic cavity, congestion of lungs, pericarditis, and suppurative lesions from which cocci of the types noted were recovered. No evidence of tuberculous infections was noted.

SUMMARY

Inoculations of 208 guinea-pigs with repeated samples of milk purchased on the open market in the winter and spring of 1930 resulted in no indications of the presence of *Brucella* organisms. Samples represented were four certified, two pasteurized, one pasteurized goat's milk of the San Francisco Bay region, and four raw milk producers who supply a small community in the Sacramento Valley.

M. S. MARSHALL

DOROTHY JARED

San Francisco.

Subarachnoid Immunization.—On account of the almost complete absence of antibodies in the normal cerebrospinal fluid and the impossibility of materially increasing cerebrospinal humoral defenses by the usual methods of immunization, several laboratory scientists have tested the possibility of direct immunization of meningeal surfaces by the local injection of vaccines. One alleged successful clinical application is currently reported.

Dr. D. R. Schamburov, of the Neuropsychiatric Institute, Moscow, Russia,¹ injected rabbits with heat-killed *B. typhosus* by the subcutaneous, intraperitoneal and subdural routes. By injecting the vaccine directly into the cerebrospinal fluid the agglutinin content of this fluid was increased a hundred-fold over that obtained by any other method of immunization. The locally formed or locally mobilized antibodies remaining at this relatively high titer for at least two months.

Emboldened by this result, he applied subarachnoidal vaccination to the treatment of "infectious chorea." Injection of 0.1 cubic centimeters of his locally standardized streptococcus vaccine by lumbar puncture was followed by sharp pains in the legs and marked rise in body temperature. Following these transient symptoms "the disease ran an unusually favorable course." Schamburov, believes his favorable result justifies further study of subarachnoid vaccine therapy.

W. H. MANWARING, Stanford University.

Anthelmintic Properties of Certain Alkyl Resorcinols.—Two alkyl resorcinol derivatives, hexyl- and heptylresorcinol, have been tried successfully by Lamson and his associates¹ in the treatment of ascariasis and uncinariasis during the past year. While it is true that the presence of ascarids may not greatly disturb their human host, mechanical intestinal obstruction may occur or the parasites may open the way for other secondary invaders. Ascariasis is indigenous in the temperate zone, and in some southern states almost half the rural population is infested. Hookworm, likewise, is very prevalent in the southern and southeastern parts of this country, and is far more serious a problem. A progressive anemia, marked emaciation, and general debility are noted in patients suffering from mass hookworm infection.

Many anthelmintics have been tried in the past with varying degrees of success. Carbon tetrachlorid is effective in removing 95 to 100 per cent of hookworms from infested hosts, according to Lamson, Minot, and Robbins.² Cases of intoxication occur, however, which are neither preventable nor susceptible to treatment. These workers demonstrated that toxicity may occur when mechanical obstruction by ascarids is present, when the patient is an alcoholic, when there is undigested food in the stomach, or when calcium deficiency exists. Similar difficulties have followed the use of chenopodium oil (or its active principle "ascaridol") in ascariasis. Fatalities have resulted from the administration of therapeutic doses of these agents, and although such accidents are rare they seriously handicap extensive use of this form of treatment. In the face of these difficulties therapy in the field cannot be employed without endangering life, which necessitates the administration of these agents under carefully controlled hospital conditions.

In an effort to find a nontoxic yet effective anthelmintic, Lamson and his group in Nashville, Tennessee, tried hexyl- and heptylresorcinols with interesting results in the laboratory and clinically. Two conditions must be fulfilled, however, in controlling mass infestation, namely, single oral doses must give a maximum percentage of cures, and secondly, the therapeutic doses must not lie within the lethal range of the drug.

Both alkyl derivatives are irritating to the gastro-enteric tract, causing a burning sensation in the stomach, and in dogs crystalline hexylresorcinol produces small submucosal hemorrhages. Combined with the protein of food the agent is more toxic, and in alcoholic solution it penetrates more deeply into the tissues than when crystals are used. Leake et al.³ have observed that the toxicity of the alkyl resorcinols increases with increase in the number of carbon atoms in the straight carbon chain, in experimental animals. Tissue changes may occur, following lethal doses in rabbits, notably focal necrosis in the kidneys and hyaline degeneration of the cells lining the tubules.

Hexylresorcinol should be given in gelatin capsules, washed down with water under fasting conditions, according to Lamson. Elliott and Barbour⁴ have shown that hexylresorcinol is absorbed in the small intestine and is rapidly excreted in the urine. Doses of one gram three times a day over a ten-week period in normal adults cause no untoward symptoms, according to Leonard's experience.⁵ Lamson recommends single oral doses of one gram in ascariasis, and was able to remove 90 to 100 per cent of the parasites in twenty patients with this dose. He feels "justified, therefore, in suggesting crystalline hexylresorcinol as an ascaricide in spite of its irritant properties."

The agent has been proposed by the same authors also in the treatment of hookworm disease. Similar doses removed 90 per cent of the worms in a carefully observed group of patients. Food taken before or immediately after treatment caused nausea and vomiting in a few cases. Oil solutions were effective but disagreeable to take. In another test group heptylresorcinol ("dihydranol") was employed by Brown,⁶ who was again successful in treating worm infestation in a relatively large number of cases. This author gave single doses of one gram over an extended period to a total dosage of seventy grams of the drug to five adults without exhibition of toxicity. These drugs should be studied clinically in tape-worm infestation.

Preliminary clinical reports indicate that hexyl- and heptylresorcinol are superior to other anthelmintics now in use, and while they are not entirely free from toxicity in therapeutic doses, the resultant untoward effects are transient and not severe. Irritative properties must be appreciated, however, and efforts should be made to reduce these side actions to a minimum so that the agents may be used in mass treatment.*

HAMILTON H. ANDERSON,
San Francisco.

¹ Schamburov, D. A. Zur Frage der Antikörperbildung im Subarachnoidalraum. Ztschr. f. Hyg. u. Infektionskr., cxi, 278, April 1930.

* For references see page 144.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

JUNIUS B. HARRIS.....President
JOSEPH M. KING.....President-Elect
EMMA W. POPE.....Secretary

OFFICIAL NOTICE

Fall Meeting of the Council.—The Fall meeting of the Council of the California Medical Association will be held at the Hotel Huntington, Pasadena, on September 26, 1931.

COMPONENT COUNTY SOCIETIES

SANTA CLARA COUNTY

The annual Palo Alto meeting of the Santa Clara County Medical Society was held at the new Palo Alto Hospital on the evening of June 17. On the afternoon of the same day the annual golf tournament was held on the Stanford University Course. Twenty-four members entered the tournament in the afternoon, and seventy-three were present for the evening program.

After an excellent dinner had been served in the hospital dining room the meeting was called to order by President Burchfiel. The yearly reports of the secretary and treasurer were read. The following new officers were elected for the ensuing year:

President, Dudley P. Fagerstrom, M. D.; first vice-president, Merlyn Maynard, M. D.; second vice-president, Robert Powers, M. D.; third vice-president, R. H. Prien, M. D.; secretary, Lucas W. Empey, M. D.; assistant secretary, Cletus Sullivan, M. D.; treasurer, Harry Hoag, M. D.

After the transaction of business the meeting was turned over to Dr. Esther Clark, president of the Palo Alto Medical Club. She then introduced Dr. Ludwig Emge, who presented a very instructive analysis of a series of cases of carcinoma of the ovary.

LUCAS W. EMPEY, *Assistant Secretary.*



YUBA-SUTTER COUNTIES

The Yuba-Sutter Medical Society met on June 9 to honor the three oldest members of this society, viz.: Dr. G. W. Stratton, Dr. T. P. Peery and Dr. J. H. Barr.

All the members of this society, and the following guests were present: Doctors June Harris, W. Briggs and F. F. Gundrum of Sacramento; Doctors Enloe and Moulton of Chico; Doctors Desrosier and Poag of Colusa; and Dr. Charles F. Keith of Williams.

The evening was spent in banqueting, with speeches and jokes during the dinner. No scientific papers were read.

The following officers were elected to serve one year: Allen E. Gray, M. D., Marysville, president; Leonard F. Sloan, M. D., Yuba City, vice-president; F. W. Didier, M. D., Wheatland, secretary and treasurer. Program committee: John A. Duncan, M. D.,

Marysville; P. B. Hoffman, M. D., Marysville; A. L. Miller, M. D., Marysville. Entertainment committee: Dr. Everett Gray, Marysville; Dr. G. S. Delamere, Marysville; Dr. N. E. Richardson, Yuba City. Delegate and alternate to California Medical Association: Dr. P. B. Hoffman, Marysville, and Dr. E. E. Gray. Board of Censors: Everett Gray, chairman; Doctor Delamere and Doctor Richardson.

F. W. DIDIER, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Alameda County—

Burton Abel Adams	Fenton B. Parker
William L. McWhirter	Roy Philson Stoops

Los Angeles County—

Fred Edgerton Abbott	Leland M. Evans
Jacob Abowitz	Reginald Kiefer Francis
Lewis George Babcock	Charles Miner Miller, Jr.
Edward Smith Blaine	Bernard Herman Smith
John William Earel	

San Bernardino County—John Lewis Nevin.

San Diego County—James Thomas Parker.

San Mateo County—William George Rebec

Santa Clara County—Philip S. Haley, Helen Brenton Pryor.

Deaths

Fancher, Charles Rousseau. Died at Oakland, June 25, 1931, age 36 years. Graduate of Washington University School of Medicine, St. Louis, 1920. Licensed in California, 1920. Doctor Fancher was a member of the Alameda County Medical Association, the California Medical Association and a Fellow of the American Medical Association.

Loper, Asbury Nelson. Died May 2, 1931, age 72 years. Graduate of the University of Michigan Medical School, Ann Arbor, 1890. Licensed in California, 1901. Doctor Loper was a retired member of the Tulare County Medical Society, the California Medical Association and the American Medical Association.

Maher, Thomas Davis. Died at San Francisco, June 19, 1931, age 57 years. Graduate of University of California Medical School, San Francisco, 1896. Licensed in California, 1896. Doctor Maher was a member of the San Francisco County Medical Society, the California Medical Association and a Fellow of the American Medical Association.

Malpas, Ida May Lathrop. Died at San Francisco, June 17, 1931, age 56 years. Graduate of Cooper Medical College, San Francisco, 1897. Licensed in California, 1898. Doctor Malpas was a member of the San Francisco County Medical Society, the California Medical Association and the American Medical Association.

Suttner, Conrad Nicholas. Died at Los Angeles, July 14, 1931, age 63 years. Graduate of Kentucky School of Medicine, Louisville, 1896. Licensed in California, 1915. Doctor Suttner was a member of the Los Angeles County Medical Association, the California Medical Association and a Fellow of the American Medical Association.

* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

Windmueller, Emil. Died at Sacramento, June 29, 1931, age 62 years. Graduate of Rush Medical College, Chicago, 1894. Licensed in California, 1923. Doctor Windmueller was a member of the Sacramento Society for Medical Improvement, the California Medical Association and the American Medical Association.

Wright, Harold Walgrove. Died at Ojai, July 12, 1931, age 78 years. Graduate of Columbia University College of Physicians and Surgeons, New York City, 1905. Licensed in California, 1914. Doctor Wright was a member of the Ventura County Medical Society, the California Medical Association and a Fellow of the American Medical Association.

OBITUARIES

Gayle G. Moseley

1885-1931

On June 17, 1931, the medical profession lost a valuable member and the community a splendid friend in the death of Dr. Gayle G. Moseley.

Born at Hopkinsville, Kentucky, September 11, 1885, Doctor Moseley attended college at the Louisville School of Medicine, later taking postgraduate work in Chicago.

In 1902 he moved to Redlands and entered into general practice, specializing in diseases of the chest. He was considered an authority on diseases of the heart and chest.

In 1911 he was married to Miss Julia C. Caldwell, who survives him, as do two daughters, Louise and Nancy.

He moved to San Francisco in 1917 to become medical director for the Aetna Life Insurance Company, a position which he held until 1924, when he returned to Redlands for the benefit of its milder climate.

Doctor Moseley participated in all medical activities. He was a member of the Council of the State Medical Association and the president of the San Bernardino County Medical Society for several years. He took an active interest in the construction of the Redlands Community Hospital and organized the Physicians' Club of Redlands.

In the death of Dr. Gayle Moseley the medical profession has lost one of its most highly respected and valued members.



Louise B. Deal

1865-1931

On June 16, 1931, San Francisco lost one of its most energetic woman doctors in the death of Dr. Louise B. Deal. She was a graduate of Cooper Medical College in 1894, and was for many years on the clinical staff of the Children's Hospital and St. Luke's Hospital.

In 1925, she helped organize and was the first president of the Women Physicians' Club in San Francisco. During the World War she was particularly active in the American Red Cross, and while prevented by ill health from going overseas, was able to perform a great service to that organization. Doctor Deal was a great power for good in her own neighborhood, the Mission District, and in all civic problems. Among her affiliations she was chairman of the Child Hygiene Committee of the Federation of Women's Clubs, past worthy matron of the Order of Eastern Star; member of the Zeta Chapter, A. E. I., and a native daughter of the Golden West.

Doctor Deal will be remembered for her untiring energies in the advancement of bills and movements for the control of narcotics.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM L. RICH, Salt Lake City.....President
R. A. PEARCE, Brigham City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building,
Salt Lake City.....Associate Editor for Utah

OFFICIAL NOTICE—1931 ANNUAL SESSION

Attention of all members of the Association is called to the scheduled State Meeting, to be held in Salt Lake City, on September 9-11. The committees on arrangements have been busy for months and a program which has never been excelled by the Association can now be definitely promised.

The meeting will be characterized by the regular scientific program, a postgraduate course by men of proven ability in their subjects and by a health meeting open to the general public. There will also be the regular annual banquet quite as a matter of course which will essentially NOT be scientific, particularly if Bill Donohoe does his part in anything like his usual form.

With such men as Brooks, Stalling, Thayer and Carlson appearing, it will be well worth the time of all members to attend. Doctor Carlson is expected to speak at the public meeting on the Public and Medical Aspects of Child Welfare and Protection, a subject in which he is very deeply interested and very well informed. This will be a review of the subject based on the findings of the White House Conference on Child Health and Protection, and should prove not only timely but informative in the extreme. It is of particular interest in view of the fact that Utah is very actively interested in the work of the White House Conference at this time.

Don't forget the dates, September 9, 10, 11, and possibly, the 12th, in view of the extensive program in hand.

Believe It or Not.—You can't live fast and live long.
You can't drink intoxicants and drive safely.
You can't safely light the kitchen fire with coal oil.
You can't run a car in a closed garage and always escape alive.
You can't get smallpox if recently successfully vaccinated.
You can't guess a gun is not loaded and safely point it at anybody.
You can't always judge the safety of a cook by the neatness of her dress.
You can't control an outbreak of contagious disease by closing the schools.
You can't keep a loaded gun in the house without being in constant danger.
You can't judge the safety of a glass of water by its clear, sparkling appearance.
You can't starve now and grow thin without weakening your resistance to disease.
You can't judge the desirability of a restaurant by the appearance of the room.
You can't eat largely and get fat without developing fatty degeneration of the organs.
You can't play long with explosives without their blowing up with surprising suddenness.
You can't determine how many people have coughed disease germs upon foods which are exposed.
You can't be careless in nursing a typhoid fever patient without danger to him, to yourself, and to others.
You can't do the most effective work when handicapped by an uncorrected physical defect or suffering from preventable disease.
You can't have unreported and unquarantined cases of contagious disease in your home without endangering your neighbors and arousing their enmity.—*Mississippi Health Bulletin.*

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

The American College of Physicians, San Francisco, 1932.—The American College of Physicians will hold its sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4-8, 1932. Following the clinical session, a large percentage of the attendants will proceed to Los Angeles, where a program, principally of entertainment, will be furnished April 9, 10 and 11.

Announcement of the dates is made now with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is president of the American College of Physicians, and will arrange the Program of General Session. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is General Chairman of Local Arrangements, and will be in charge of the Program of Clinics. Dr. Francis M. Pottenger, of Monrovia, is president-elect of the college, and will be in charge of arrangements at Los Angeles. Mr. E. R. Loveland, executive secretary, 133-135 S. Thirty-sixth Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming session.

CORRESPONDENCE

Subject of This Letter: "Medical Practice by Mail"*

420 State Office Building
Sacramento, California

June 16, 1931.

Mr. Albert Carter, Special Agent,
Board of Medical Examiners,
909 Pershing Square Building,
448 South Hill Street,
Los Angeles, California.

Yours of June 5, re: Carl F. Bokmeyer Remedy Company, medical practice by mail.

Dear Mr. Carter:

Medical practice by mail is no new innovation, inasmuch as far back as we can remember, advertising of extrastate medical concerns has been carried in the newspapers, and, we presume, will continue to so be carried.

The most flagrant example of practice by mail are the Chinese herbalists. Sporadically, the post office authorities issue a fraud order based upon the mail-order methods used by these Chinese herbalists, who immediately either change their name or the initial of their name or direct that mail be sent to another address, and continue merrily on without interruption. An example of this is Lau Yit Cho, Chinese herbalist of San Francisco, who, after it was reported that a fraud order had been issued denying him the use

of the mails, is said to have included in his newspaper advertisements direction that he be addressed at a different street number; hence, the fraud order was valueless.

Comment on this peculiar situation whereby individuals scorn our federal regulations appears in the *Journal of the American Medical Association*, June 6, 1931, page 1975, in the paragraph headed "Holmes' Dead Shot." In said paragraph is related the evasion of fraud order by change of names, addresses, etc., the following comment being made: "It seems a pity that Holmes has not been prosecuted criminally by the federal authorities and sent to the penitentiary. Such flagrant flaunting of the powers of the United States Government by an obscure swindler is not likely to increase the respect of law-abiding citizens for their own government. Furthermore, such wholly inadequate punishment is not likely to act as a deterrent to other swindlers."

The *Journal of the American Medical Association* of June 6, 1931, page 1974, also carries the notation that a fraud order was issued November 8, 1930, against the Fong Wan Herb Company, Oakland, California, arising from advertising matter appearing in the *San Francisco Chronicle* and the *San Francisco Examiner*, it being related that "Examination and analysis of the herbs sold by this quack showed that they contained nothing that would be in any way beneficial or curative for the conditions for which they were recommended. . . ." The article further states the gross income of Fong Wan to have been \$50,000 annually.

After this fraud order had been issued, our attention was called to an advertisement of the Fong Wan Herb Company printed in a San Francisco Italian newspaper in which customers were directed to address their correspondence to Mr. Fong Poy, 578 Tenth Street, Oakland, rather than to the Fong Wan Herb Company, 576 Tenth Street, Oakland, which address was boycotted under the fraud order. In other words, to evade the fraud order, it was apparently only necessary to change the name and also the street number by two figures, *i. e.*, from 576 to 578.

The Board of Medical Examiners has several times attempted to prosecute Fong Wan in Oakland for violation of the Medical Practice Act; however, according to the reports of our investigation department, the ways of the "wily Chinese" have seriously handicapped our endeavors.

Very truly yours,

C. B. PINKHAM, M. D.,
Secretary-Treasurer.

* * *

Subject of the Following Letter: Army Medical Reserve Corps Classes of Major H. C. Mallory

To the Editor: It may be of interest for members of the California Medical Association to know that members of our profession who are affiliated with the work of the Medical Reserve Corps of the U. S. Army have been indeed very fortunate during the past year in having the classes conducted by Major Herbert C. Mallory of the regular Medical Corps service and who is stationed at the Presidio.

Major Mallory came to us from the Pacific Northwest, where he greatly enlarged the scope and attendance of the Medical Reserve Corps classes, as well as the interest of the profession, developing a very enviable and enthusiastic attendance, both in numbers

* Editor's Note.—See also item on "Chinese Herbalists," printed in *California and Western Medicine*, June 1925, page 470.

and in the type of men attending. He then came to San Francisco and from a relatively small number who attended classes, has again developed a large and enthusiastic class by reason of his unusual ability and knowledge of the needs of the reserve officers.

Supplementing his work and through his efforts the members of the class were very fortunate in having delivered them a series of lectures by Colonel Bowen, a line officer and Chief of Staff. Several members of the class felt that the work which these officers have done for the members of the medical profession who are interested in national defense, merited mention in the official journal of the California Medical Association.

It is to be hoped that the War Department will allow the work, which has been so well conducted during the past year under such able officers, to be continued for some time to come. Those members of our profession who have been fortunate enough to attend the classes are very grateful and appreciative.

Very truly yours,

RUSSEL C. RYAN.

909 Hyde Street, San Francisco.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. IV, No. 8, August 1906

From some editorial notes:

Fire Risks.—It will well repay every physician in the country to study carefully the attitude of the various fire insurance companies toward the losers in the San Francisco disaster of last April. It appears from a careful investigation of the matter that very few members of our profession, in San Francisco, were insured for anything like the full value of their office property, and very many carried no insurance at all except upon their personal effects and homes. Probably \$1000 would be in excess of the average amount of insurance held by physicians on their office fixtures. How far would that sum go in rehabilitating your office, if all things in it were destroyed? . . .

Merely a Specialty.—When will we fully grasp the fact that dentistry is really but a specialty in medicine; that it is just as much an integral part of medical science as orthopedics, and that it should carry with its special practice a thorough knowledge of medicine? All this is forcibly called to mind by a paper read before the Section on Stomatology, at the last meeting of the American Medical Association, by Dr. Eugene S. Talbot. "Rigg's disease," or "pyorrhea alveolaris," or as it has now come to be called, interstitial gingivitis, has made very many of us uncomfortable; we know but too well what are its local manifestations. . . .

From an article on "Choice of Anesthesia" by H. L. Parish, M. D., Calistoga.

The choice of an anesthetic calls for the consideration of the purpose for which it is to be given, the patient upon whom it is to be used, and the agent with which anesthesia is to be accomplished. . . .

From an article on "Local Anesthesia" by T. C. Edwards, M. D., Salinas.

Local anesthesia, by the introduction into the tissues of some neutral or physiologically active drug, has been practiced for a score of years or more. It

seems, therefore, that we have had ample time to arrive at some definite conclusions as to its uses and abuses.

When the use of cocaine for this purpose was first brought to the notice of the profession, solutions varying in strength from 4 per cent to 10 per cent were used. . . .

From an article on "Effect of Proprietary Literature on Medical Men" by N. S. Davis, M. D., Chicago.

The printed matter issued by the manufacturers of proprietary and exclusive medicines is as various as are their products. The smaller part has a high scientific value; the larger part is more or less clever advertisement of wares for sale.

Naturally, as a monopoly of a good thing is sure to bring wealth to the manufacturer, almost every drug maker endeavors to place on the market one or many specialties of his own. . . .

DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M. D., *Director*

SEASON FOR DROWNINGS BEGINS

There were 370 deaths from drowning in California last year. Most of these deaths occurred during the months of May, June, July and August, the number of deaths occurring during the principal months of the vacation season. Most deaths from this cause are in men. The number of women who drown is relatively small. About twenty-five per cent of all deaths from this cause are of persons who are between the ages of thirty-five and fifty-four years. The safest years for engaging in water sports are those between twenty and thirty-four years. Relatively few deaths from drowning occurred in persons who are of this age group. This indicates, perhaps, that individuals who are in the most vigorous stage of life are better able to protect themselves against the possible hazards of accidental drowning.

In the past ten years, 3851 persons have drowned in California. The greatest number of drownings to occur in any one year was in 1928, when a flood occurred on the Santa Clara River due to the collapse of the St. Francis Dam. Numbers of deaths from drowning in California, by years, are as follows:

1921.....	314
1922.....	341
1923.....	314
1924.....	340
1925.....	327
1926.....	407
1927.....	398
1928.....	708
1929.....	332
1930.....	370

The lives of many persons who have apparently drowned could be saved if a proper method of artificial respiration were used. The prone pressure method of producing artificial breathing is advocated by the United States Public Health Service, the American Red Cross and all leading public health organizations. Every individual who swims and everyone who may visit places where there is public swimming should know how to use this method of resuscitation. If applied promptly and properly it will save the lives of many persons who have apparently drowned. This method is also used with great success in the promotion of respiration in persons who have received heavy electric shocks, or who have been asphyxiated by gas. The approach of the vacation season makes it important for all swimmers and all individuals who frequent swimming places to learn and practice this method of resuscitation. The large industrial plants and many public service corporations have provided means for instructing their employees relative to the use of the prone pressure method.

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

Vaccination Histories for Cases of Smallpox—California

Year	Vaccinated within 7 years	Vaccinated over 7 years	Never vacci- nated	History unobtain- able	Total cases reported
1920.....	36	301	3,889	266	4,492
1921.....	47	340	5,108	84	5,579
1922.....	30	131	1,952	16	2,129
1923.....	27	91	1,906	2	2,026
1924.....	57	856	8,978	54	9,445
1925.....	31	233	4,636	21	4,921
1926.....	26	285	2,454	29	2,794
1927.....	13	61	907	3	984
1928.....	16	74	1,084	2	1,176
1929.....	24	103	2,307	35	2,469
1930.....	27	151	2,931	30	3,139
Totals.....	334	2,126	36,152	542	39,154
1920-1930 inclusive (cases with histories), 38,612.					
Vaccinated within 7 years..... 334 cases or 0.86%					
Vaccinated over 7 years..... 2,126 cases or 5.51%					
Never vaccinated 36,152 cases or 93.63%					
Note.—Percentages based on 38,612 (number of histories).					

Little Typhoid in California.—Typhoid fever is not epidemic anywhere in California. There have been relatively few cases reported in the state since the first of the year and these were not reported in large groups but were scattered throughout the state. The status of typhoid fever in California, at the present time, is better than it has been for many years. None of the summer resort areas of the state are unsafe, at the present time, because of typhoid fever or any other disease.

Rumors that the disease is epidemic in the Russian River section are wholly unfounded. There has been but one case of the disease reported from that region and that case was in a rancher who contracted the disease last April. There is no basis for the rumor referred to and any reports that would indicate the presence of an epidemic of the disease, at the present time, anywhere in California are absolutely without foundation of fact.

The Rabies Situation in California.—*The Journal* has directed attention repeatedly to the increased prevalence of rabies. The present situation as to the endemicity of the disease in California, particularly in the southern portion of that state, is alarming. Difficulties in the enforcement of a proper measure of control have developed. Thus the *Weekly Bulletin of the California State Department of Public Health*, May 23, states:

“Since 1920, forty-two human beings have died of rabies in California. In face of the fact that all of these cases were preventable, their occurrence constitutes a serious indictment of the people of California communities who will not permit the institution and maintenance of proper control measures. Even though the enforcement of such measures is as much in the interest of the dogs as it is in the interest of human beings, through some misguided idea efforts for the control of the disease are often denied. It is a tragedy more cruel than anything that could possibly be conceived in any drama.”

Since 1910 and to date in 1931, 7748 cases of rabies have occurred in animals and since 1899, seventy-eight human deaths, two of these occurring only recently in children. In southern California 275 cases in animals have occurred since January 1, resulting in one human death. The presence in any community of this comparatively easily eradicated disease indicates that the community or its organized authority is not doing all that should be done to control the menace of rabies. California, or at least an important portion of the state, could be considered an epidemic focus of this serious and expensive but preventable disease. What a pity that the great state should be so dominated by fanatical cultists as to make such a situation possible.*—*Journal of the American Medical Association*, June 27, 1931.

* Editor's Note.—The above is here printed because it gives additional figures to those presented on the rabies situation in California, as printed in the *July California and Western Medicine*, page 49. Also an item on page 144 of this issue of *California and Western Medicine*.

CALIFORNIA BOARD OF
MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Secretary-Treasurer of the Board

News Items, August, 1931

Some 133 applicants appeared for written examination at the July meeting of the Board of Medical Examiners, held in San Francisco July 6 to 9, inclusive, 1931, and 135 have filed applications for the written examination to be held in Los Angeles, July 20 to 23, inclusive. This group comprises approximately 230 graduates of medical colleges, thirty-six chiropodists and two midwives.

The board made the following changes in the status of licentiates:

Angus, David M., M. D., Seattle, certificate revoked July 7, 1931, based upon his conviction of illegal operation;

Barber, Schuyler A., M. D., Porterville, certificate revoked July 8, 1931, based upon narcotic charges;

Cramer, Fay E., M. D., Los Angeles, July 7, 1931, placed on probation for five years, without narcotic privileges, based upon a federal narcotic conviction;

Drader, Cecil R., M. D., Greenville, July 8, 1931, certificate suspended for a period of one year based upon record of narcotic conviction;

Dyment, Philip, M. D., San Diego, certificate revoked July 7, 1931, based upon revocation of his Georgia certificate, on which he obtained his California certificate;

Eda, Suzuno, midwife, Fresno, suspended July 7, 1931, for a period of one year;

Fiske, William C., M. D., Hermosa Beach, certificate revoked July 7, 1931, on plea of guilty to manslaughter charged following the death of Vera Nelson, 19, in his office last September;

Higgins, Orient C., M. D., Porterville, suspended July 8, 1931, for a period of one year, based on narcotic charges;

Hoffman, Ernest R., M. D., certificate restored July 6, 1931;

Howson, Christopher, M. D., Oakland, suspended July 8, 1931, for a period of one year for aiding and abetting an unlicensed practitioner;

MacLauchlan, Robert H., M. D., San Francisco, certificate restored July 9, 1931;

Newcomb, Ralph, M. D., Upper Lake, certificate revoked July 8, 1931, for violation of the terms of his probation;

Petersen, Dagmar, M. D., Selma, probation July 8, 1931, for a period of five years without narcotic privileges, based on narcotic dereliction;

Speicher, Asa Frye, M. D., Los Angeles, certificate revoked July 8, 1931 (by stipulation), following narcotic dereliction;

Stevens, David A., M. D., Wilmar, certificate revoked July 9, 1931, conviction statutory crime;

Weaver, Darrington, M. D., Los Angeles, certificate revoked July 9, 1931, narcotic conviction.

Attorney General Webb recently rendered an opinion that physicians who failed to file birth certificates within four days of the child's birth day are liable to prosecution under the statute which makes failure to file a misdemeanor.

According to reports, Bessie L. Barber pleaded guilty in Los Angeles June 22 on a charge of violation of the Medical Practice Act, sentence being suspended for six months and defendant placed on probation.

Report has been filed stating that Ethel Francis pleaded guilty in Los Angeles, June 22, to violation of the Medical Practice Act, sentence being suspended and defendant placed on probation.

In a jury trial in Department 6 of the Superior Court of San Francisco, which lasted three days, George D. Gillespie, licensed drugless practitioner and chiroprapist, was on June 11, 1931, found guilty of second degree murder, arising from an alleged illegal operation, and on June 15 was sentenced to serve from five years to life, but on account of his advanced age, sentence was suspended pending good behavior.

"An injunction preventing the Kaufmann Medical Service, Ltd., from using his name to solicit new subscribers, was granted to Dr. Hubert R. Arnold, 450 Sutter Street, by Superior Judge Lile T. Jacks today. Doctor Arnold charged in his suit that the Medical Service Company had told his own patients that by subscribing to the Kaufmann service, they would not have to pay Doctor Arnold any fees for medical attention. Doctor Arnold alleges he is not connected with the Kaufmann organization" (*San Francisco News*, June 18, 1931).

"Five San Francisco physicians and a 'prescription broker' pleaded guilty to misdemeanor counts of violation of whisky prescription privileges in Federal Court today and were fined \$500 each. Dr. Carl Keller, Dr. J. H. D. Roger and Dr. Mary Kroetz and M. A. Mathews, the asserted broker, appeared before Federal Judge A. F. St. Sure. Dr. J. M. Stowell and Dr. Michael Robinson were fined by Judge Frank H. Kerrigan. . . ." (*San Francisco Call-Bulletin*, June 30, 1931).

"Two Oakland doctors were fined in Federal Court today on their pleas of guilty to charges of violating the prohibition laws by issuing improper prescriptions. They were Dr. Floyd E. Lewis, 621 Dalziel Building, fined \$500, and Dr. Theodore C. Lawson, 3113 Webster Street, fined \$250. With eight other Oakland physicians and a pharmacy, they were indicted by the Federal Grand Jury Tuesday" (*San Francisco News*, July 9, 1931).

Reports relate that Madame Clara McNail pleaded guilty on June 22 in Los Angeles to a charge of violation of the Medical Practice Act and sentence was suspended for six months, she being placed on probation.

Reports relate that Ralph Newbre on May 29 pleaded guilty to a violation of the Medical Practice Act in Los Angeles and was sentenced to pay a fine of \$300 or serve fifty days in the city jail, sentence suspended on condition of no further violation of the Medical Practice Act.

"Dr. A. Nusbaum, one of six doctors arrested on federal charges in the prescription racket here, recently pleaded guilty to a misdemeanor count of violating the terms of his permit and was fined \$500 by Judge A. F. St. Sure. . . ." (*San Francisco Call-Bulletin*, June 29, 1931).

"In a ruling by the District Court of Appeals yesterday, Doctor (Painless) Parker was again made eligible to practice dentistry in California. The decision reversed the State Board of Dental Examiners, which suspended Doctor Parker from practice for five years on a charge of unprofessional conduct. Judge John T. Nourse, who wrote the decision, held that though the business affairs of various offices licensed by him may have been run by unlicensed persons, all dental work was done by licensed dentists. There is nothing wrong in this, the judgment holds" (*San Francisco Examiner*, June 24, 1931).

Reports relate that Margaret B. Quinn on June 8 in the courts of Los Angeles, pleaded guilty to a violation of the Medical Practice Act, sentence being suspended on condition that she comply with the law.

References to article of Dr. H. H. Anderson (see page 138).

¹ Lamson, P. D., Wood, C. B., and Brown, H. W.: *Proc. Soc. Exper. Biol. and Med.*, 27:1017, 1930; Lamson, P. D., Brown, H. W., Ward, C. B., and Robbins, B. H. *ibid.*, 28:191 1930.

² Lamson, P. D., Minot, A. S., and Robbins, B. H.: *J. A. M. A.*, 90:345, 1928.

³ Anderson, H. H., David, N. A., and Leake, C. D.: *Proc. Soc. Exper. Biol. and Med.*, 28:609, 1931.

⁴ Elliott, D. C., and Barbour, H. G.: *Canad. M. A. J.*, 15:787, 1925.

⁵ Leonard, V.: *J. Urol.*, 12:585, 1924.

⁶ Brown, H. W.: *J. Parasitol.*, Abstract, December 1930.

The Influenza Play—A Fifteenth Century Burlesque.—The doctors are telling us that the best specific against influenza is laughter—but that is something which the citizens of Nuremberg discovered more than five centuries ago, during the great epidemic of 1414.

And if anyone doubts that 'flu was flu' in those days here are the symptoms which the victims suffered: sneezings, snufflings, shiverings, coughings, with such pains in back and head that the disease was called *tannewechsel* or *tannewitzel*—a blow on the forehead. Everybody caught it; no doctor could cope with it. The Emperor Sigismund wisely paid a visit to Rome to avoid infection. So the merchants of Nuremberg, where the epidemic raged worst of all, made a play of it—the Influenza Play.

A wooden stage was erected in front of the Town Hall, and the 'prentices were the actors, while the citizens crowded the market-place to watch the show. The scene represented a court of justice, and to the bar summoned, as a prisoner, Messer Tannewechsel, Mr. Influenza himself. He was represented as a weird, red-nosed, snivelling figure, a burlesque version of Messer Death, in the popular "Danses Macabres" of that day. And against him were called up a crowd of witnesses, his victims of all classes. When all had given witness, Messer Influenza was called upon to plead for himself. He protested his innocence, vowed his so-called victims had brought their troubles on themselves.

What a modern ring it has! for a play written five centuries ago. But no such specious pleas availed Messer Tannewechsel; judgment was passed; the prisoner at the bar found guilty and sentenced to summary execution by the sword. He was led away by Messer Pausenbart, the public executioner, and a burlesque beheading followed, amidst the shouts of laughter which rose from the delighted audience as Mr. Influenza died the death. Quite possibly that laughter did them good, according to the latest medical opinion. In any case, it is recorded that the epidemic was stayed and that no more fell sick in Nuremberg.—From the *Weekly Times*, February 5, 1931.

Rabies.—On May 12 last a young Waltham man was bitten on the nose by a dog. Suffering with rabies, he was taken to a hospital. The mayor of Waltham has been requested to have dogs restrained for ninety days.

This is the second rabies case of this year. Since there is no published report of the subsequent history of the dog that bit this young man it may be that other dogs are infected in that section of the state and an outbreak of the disease may occur at any time.

There were at least five hundred rabid animals in Massachusetts last year and the State Health Commissioner feels that the general public is not coöperative in dealing with the menace of rabies.

This disease is one of the especially horrible afflictions of mankind but many persons have never had friends afflicted with it and are skeptical of its existence.

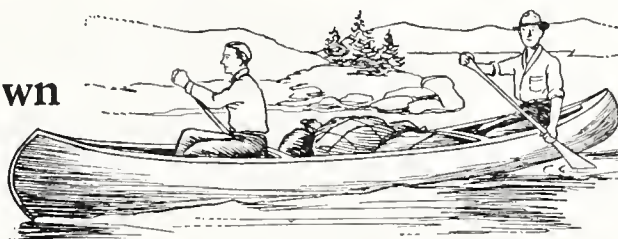
Physicians should take occasion to impress on the people that rabies exists and must be met by active measures. Obstructionists may be responsible for human deaths.—*New England Journal of Medicine*, June 18, 1931.

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TRUTH ABOUT MEDICINES

(Continued from Page 31)

viously issued on a business run by this woman under the name, National Medical Products Company, it has now been extended to cover the Texan Products Company. Universal Sales. This was a trade name used by one C. H. Bernard, who sold through the mails a so-called Vacuum Muscle Massager, commonly known as a vacuum pump, for the alleged purpose of developing the male sexual organ. The business was declared a fraud and debarred from the mails. Holmes' Dead Shot. Benjamin P. Holmes, a Georgia farmer, for some years sold through the mails a fraudulent nostrum for the alleged cure of syphilis and gonorrhea. The post office authorities issued a fraud order against Holmes, debaring him from the use of the United States mails. Subsequently the same scheme was operated under the names of Mrs. B. P. Holmes and Effie Holmes and the order was extended to include these names. Still later the business was continued under the name of O. Holmes and the fraud order was extended once more. It seems a pity that Holmes has not been prosecuted criminally and sent to the penitentiary.—*Journal of the American Medical Association*, June 6, 1931, p. 1974.

Pheno-Isolin.—According to the Scientific Manufacturing Company, Inc., "The chemical composition of Pheno-Isolin is practically identical with that of chaulmoogra oil. . . This combination is brought about by a condensation product of the phenols with thymol, in solution in vegetable oil." There appears to be no scientific data that substantiates the claimed composition of the product. The product is advertised blatantly under such catchlines as "How to Prevent and Destroy Infection." Unusual arguments are

(Continued on Page 37)

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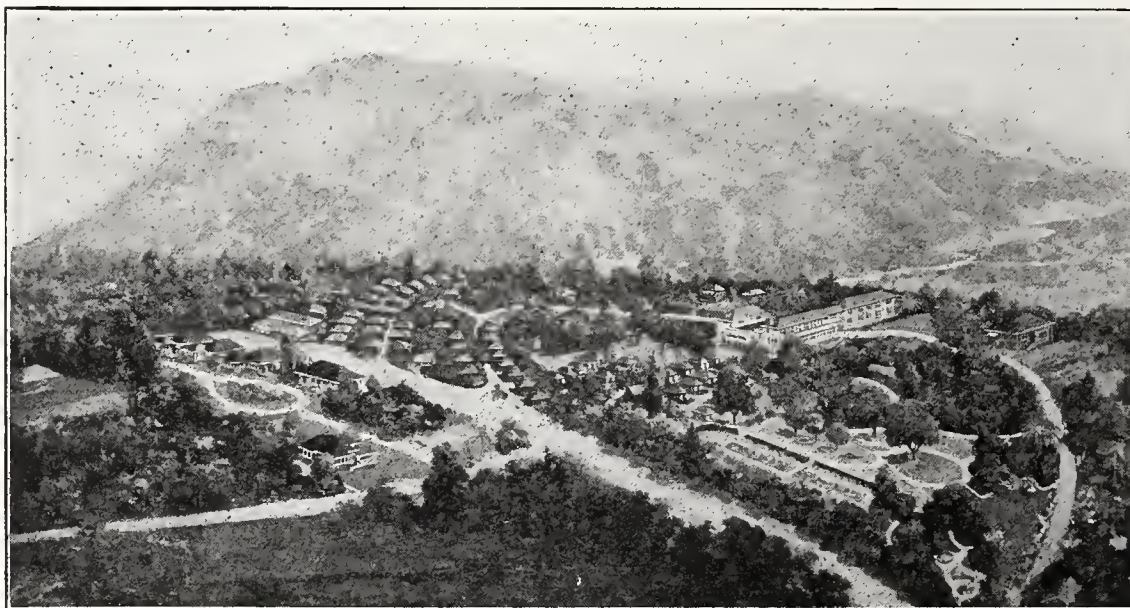
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TRUTH ABOUT MEDICINES

(Continued from Page 34)

offered in support of the claims made.—*Journal of the American Medical Association*, June 6, 1931, p. 1978.

Sulfobetin Not Acceptable for New and Nonofficial Remedies.—Sulfobetin is a product of Sulfobetin (Vertrieb), Bratislava, Czechoslovakia; its consideration was requested by the American representative, Alex Friedmann & Company, Chicago. Sulfobetin is marketed in the form of tablets: Sulfobetin Antidiabeticum; Sulfobetin Bio, and Sulfobetin Cutis. Sulfobetin is stated to consist of organic nitrogen containing sulphur iodid compound. Sulfobetin Antidiabeticum was stated to contain sulphobetin and yeast; Sulfobetin Bio was stated to contain sulfobetin and powdered iron; and Sulfobetin Cutis was stated to contain Sulfobetin, yeast and animal charcoal. The Council on Pharmacy and Chemistry reports that Sulfobetin, Sulfobetin Antidiabeticum, Sulfobetin Bio and Sulfobetin Cutis are unacceptable for New and Nonofficial Remedies (a) because the identity and chemical composition of "Sulfobetin" is indefinite and because no evidence is supplied to show that the composition and uniformity of the preparations stated to contain it are uncontrolled; (b) because no evidence for the therapeutic value of Sulfobetin or of the preparations containing it has been supplied; (c) because the names Sulfobetin Antidiabeticum and Sulfobetin Cutis are therapeutically suggestive, and (d) because no evidence for the rationality of a mixture of Sulfobetin with yeast, of Sulfobetin with powdered iron, or of Sulfobetin with yeast and animal charcoal has been furnished.—*Journal of the American Medical Association*, June 13, 1931, p. 2036.

Use of Salinized Water in Industry.—At the present time salines are regarded as preferable to dex-

trose in the prevention and treatment of factory cramps due to excessive loss of fluid and salines through sweating. Both prevention and treatment of cramps are well abetted by the intake of dilute saline solutions to compensate for loss through sweating. It is, however, undesirable that tablets of salts be taken into the body as such. It is better that the entire water supply be treated with salt to the extent of 1 per cent. A strength of from 0.3 to 0.5 per cent, being more palatable, may lead to more extensive use, especially if kept at a temperature from 47 to 52 degrees Fahrenheit.—*Journal of the American Medical Association*, June 13, 1931, p. 2055.

Crown Medicine Company, Thomas Reed's Fraud, Debarred from the Mails.—The Crown Medicine Company was a mail order fraud operated from Atlanta, Georgia. A fraud order debaring the Crown Medicine Company and its officers and agents, as such, from the use of the United States mails was issued by the Post Office Department. The Crown Medicine Company was the trade name used by one Thomas Reed. For years Reed has sold a preparation called Crown Treatment, representing that when used as directed, the preparation would cure pellagra. When the Crown Treatment was analyzed by the federal chemists it was found to be a mixture of potassium iodid and mercuric chlorid, with a small amount of iron sulphate and aromatic material.—*Journal of the American Medical Association*, June 13, 1931, p. 2053.

Bismuthoidol Not Acceptable for New and Nonofficial Remedies.—The Council on Pharmacy and Chemistry reports that in 1926 Les Laboratoires Robin, Paris, France, requested acceptance of Bismuthoidol, which was stated to be colloidal bismuth in isotonic solution. The product is distributed in the United States by E. Fougera & Company, New York. The Council examined the submitted evidence and

(Continued on Page 43)



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"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."

"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

THE DIRECTOR

"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

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" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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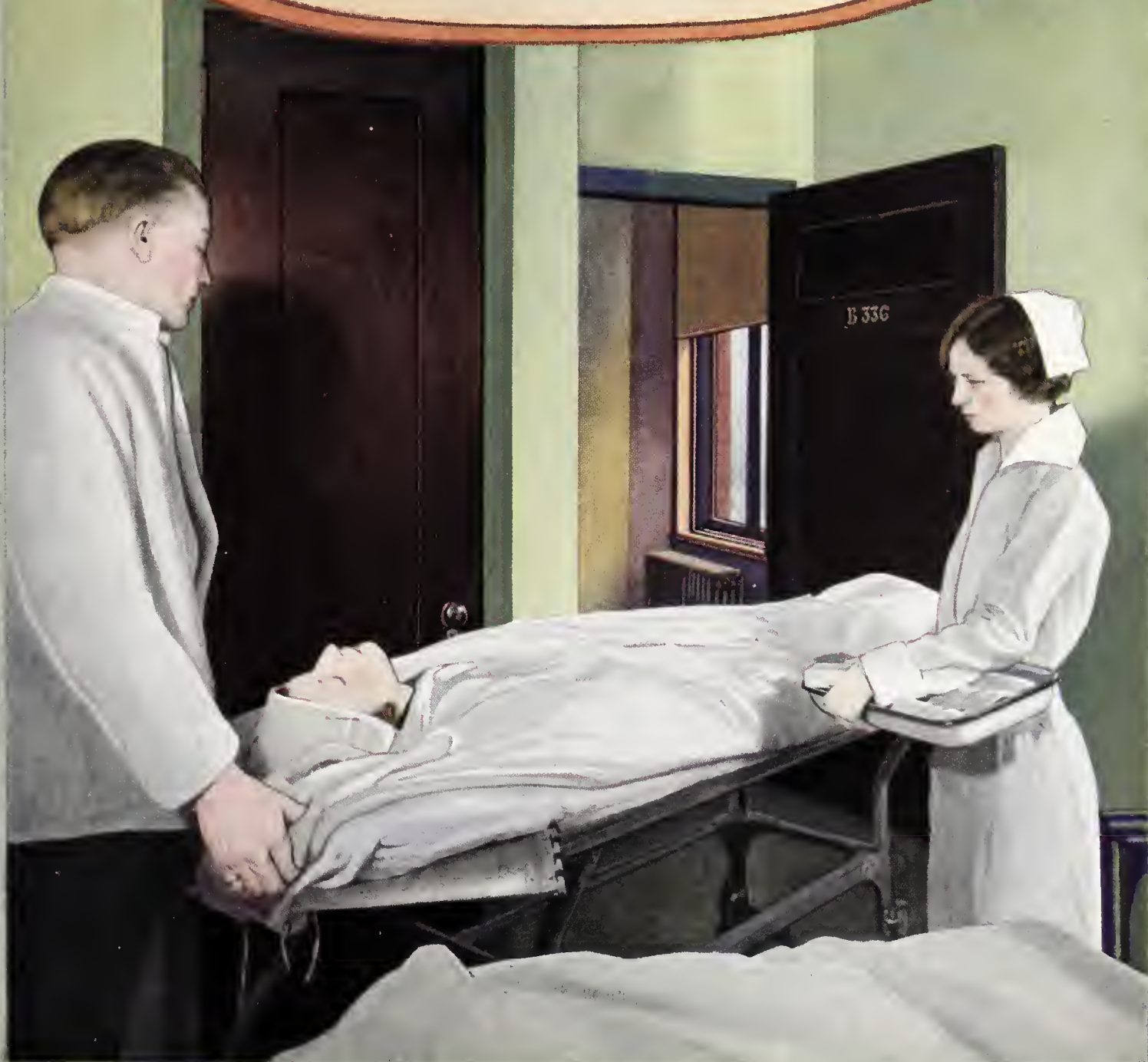
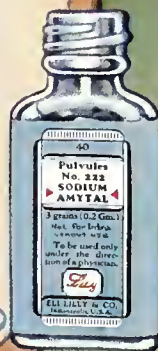
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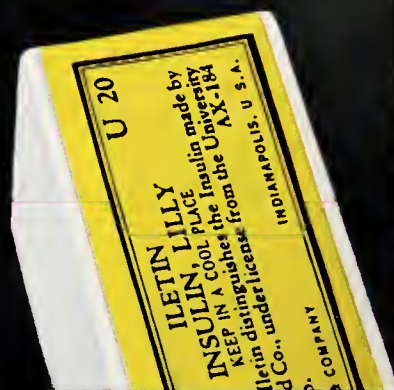
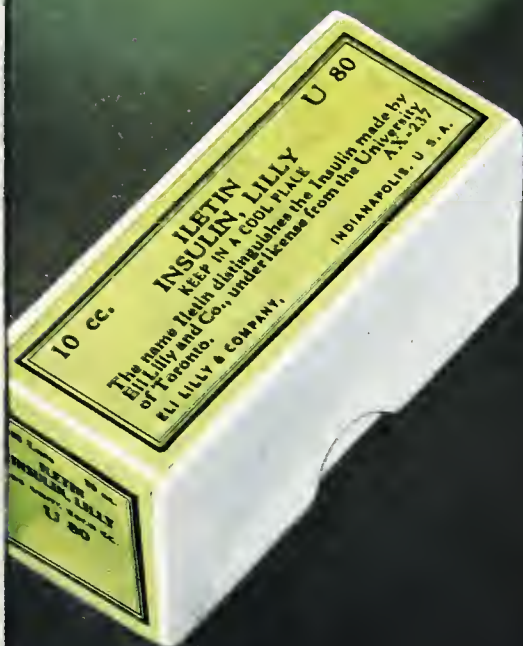
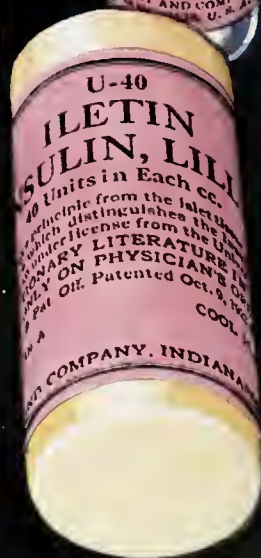
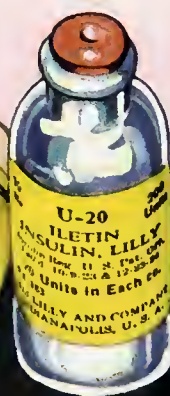
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TRUTH ABOUT MEDICINES

(Continued from Page 37)

informed the proprietors that it was insufficient to establish the claims advanced for the product. In 1930 E. Fougera & Company again requested consideration of Bismuthoidol. The Council examined the further evidence which was submitted and informed E. Fougera & Company that Bismuthoidol is at present unacceptable for New and Nonofficial Remedies because the submitted advertising shows that, if accepted, its acceptance would be used to advertise unaccepted products and because the claims made for the product are unwarranted. The Council's report calls attention to the fact that, while the Council holds the intravenous administration of bismuth preparations unsafe, Bismuthoidol is used intravenously.—*Journal of the American Medical Association*, June 20, 1931, p. 2104.

Refistine Not Acceptable for New and Nonofficial Remedies.—According to the information sent the Council on Pharmacy and Chemistry by the American distributor, Refistine is the dry extract of a Brazilian plant belonging to the group of "strychnoses," marketed in the form of tablets. The preparation is claimed to be efficacious to combat hypertension, arthritism, arteriosclerosis, rheumatism, etc. The Council found Refistine unacceptable for New and

Nonofficial Remedies because no evidence for the therapeutic usefulness of the preparation had been furnished and the claims for its use are unwarranted; because it is marketed in a way that may lead to its ill advised use by the public; and because no evidence was supplied to show that the composition and uniformity of the preparation is adequately controlled.—*Journal of the American Medical Association*, June 27, 1931, p. 2197.

Science and the Advertiser.—*Printers' Ink*, a journal for advertisers, is anxious to establish a "Forget Scientists Week": "Perhaps you have been so foolish as to think that scientists worked at the business of science. Not so. They test cigarettes, tell frightened mothers about breakfast foods, warn young men against the dangers of something that usually ends with -osis. Now and then, to be sure, they make an epoch-making discovery which will bring about an astounding revolution in the manufacture of nine-count, full-fashioned galoshes. In short, they are scientists of the advertising pages." *Printers' Ink* recognizes the dismay that has been aroused in scientists generally by the exploitation of pseudoscience in advertising. It ridicules those who are now preparing copy for advertisements in modern periodicals because they are so utterly lacking in originality. Advertising in the periodicals of the United States has

(Continued on Page 45)



Solving the problem of appetite deficiency

*with this delicious
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FOR the patient who will not eat ... for the child who is undernourished, underweight ... for the convalescent with sluggish appetite.

Cocomalt is the ideal food drink! Not only does it stimulate the appetite, but it actually increases the caloric value of a glass of milk more than 70%.

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Distributors for Standard X-Ray Company’s X-Ray Apparatus, Hanovia Alpine Sun Lamps, Physiotherapy Equipment.

TRUTH ABOUT MEDICINES

(Continued from Page 43)

gone to lengths that have opened it to ridicule and censure.—*Journal of the American Medical Association*, May 23, 1931, p. 1799.

Research for a Non-Habit-Forming Substitute for Morphin.—The Committee on Drug Addiction of the National Research Council announces a large collaborative research in alkaloidal chemistry by chemists and pharmacologists of this country. Apparently the present object of the committee is to prepare a non-habit-forming substitute for morphine that will yet possess the desirable action of morphin.—*Journal of the American Medical Association*, March 14, 1931, p. 863.

What One Newspaper Did to Protect the Public Against Charlatans.—Last July the Philadelphia *Record* started to look into the problem of medical quackery and published a most interesting and enlightening series under the general title “Bootlegging the Healing Arts.” The *Record* called for no help from the medical profession, either locally or nationally. The *Record* reports that thirty-seven cases were brought up with thirty-five convictions.—*Journal of the American Medical Association*, March 14, 1931, p. 883.

Therapeutic Possibilities of Gastric Mucin.—The gastric mucus aids in protecting the cells from digestive or “erosive” damage by the acid that is poured into the lumen of the stomach when the gastric glands are active. Undue secretion of mucus in the stomach is responsible for lowering of the gastric acidity, just as proteins tend to “bind” free hydrochloric acid. The actual capacity of mucus to produce such an effect has been verified. Mucin prepared from hogs’ stomachs was more potent than equivalent amounts of common protein foods such as gelatin, meat, and egg white. In a few human

patients with definite histories of ulcer and roentgenographic evidence of peptic ulcer the addition of powdered mucin to the ordinary bland diet brought about relief from subjective symptoms.—*Journal of the American Medical Association*, February 28, 1931, p. 693.

More Misbranded Nostrums.—The following products have been the subject of prosecution by the Food and Drug Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Walker’s Old Indian Fever Tonic (Bostwick Bros.), consisting essentially of Epsom salt, quinin sulphate, a small amount of arsenic, alcohol, and water. Zunicol (Antonio A. Zuniga), consisting essentially of eggs, creosote, copaiba, sugar and water. C. C. T. Antiasthmatic (Hare) (Shores-Mueller Co.), containing less potassium iodid and sodium bromid than claimed. Rice’s Cough Syrup (Rice Chemical Co.), consisting essentially of extracts of plant drugs, including white pine, wild cherry, sassafras and bloodroot, alcohol, glycerin, sugar, and water. Oxidine and Tasteless Oxidine (W. S. Kirby), the first consisting essentially of quinin sulphate, cinchonin sulphate, extracts of a laxative plant drug, glycerin, sugar, alcohol, and water, and the second consisting essentially of cinchonidin sulphate, oil of peppermint, sugar, alcohol, and water. Glykeron (Iglesias and Co.), consisting essentially of codein phosphate, an ammonium salt, extracts of plant drugs, glycerin, alcohol, sugar, and water. Vicine (The Vicine Products Co.), consisting essentially of iron sulphate, small amounts of phosphates, calcium salts and sulphuric acid in water. Neo-Syn (The Neo-Syn Co.), containing acetphenetidin, acetylsalicylic acid, caffeine, and starch. Bradfield’s Female Regulator (Bradfield Regulator Co.), consisting essentially of extracts of plant drugs, including a laxative, glycerin, alcohol, and water.

(Continued on Page 47)

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TRUTH ABOUT MEDICINES

(Continued from Page 45)

Tanna-Menthol (The Tanna-Menthol Co., Inc.), consisting essentially of potassium iodid, menthol, iodine, tannic acid, glycerin, alcohol, and water. Inhalet (The Lobe Manufacturing Co.), consisting essentially of menthol.—*Journal of the American Medical Association*, February 28, 1931, p. 709.

Koremlu—A Dangerous Depilatory.—There has been on the market for some time a depilatory sold under the name "Koremlu Cream," marketed first under the trade name "Kora M. Lublin," more recently under the style "Koremlu Inc.," both of New York City. According to the advertising, Koremlu is "guaranteed to devitalize superfluous hair roots on face or any part of the body." From information received it was quite apparent that Koremlu contained thallium acetate. Reports of serious effects of the use of Koremlu Cream have been reported that are typical of thallium poisoning. The American Medical Association Chemical Laboratory analyzed the preparation and concluded that it consisted essentially of an ointment containing approximately 7 per cent thallium acetate and 9.5 per cent of zinc oxid. Doctor Sabourand, who studied the effects of thallium as a depilatory, declared that any ointment containing more than one per cent of thallium acetate is dangerous. He cautioned that but small amounts of the one per cent ointment should be used at one time; no limit is given to the amount of Koremlu, which is much stronger, that should be applied.—*Journal of the American Medical Association*, February 21, 1931, p. 629.

The Electro-Chemical Ring Fraud.—In 1915 a post office fraud order was issued against the Electro-Chemical Ring Company of Toledo, Ohio. According to the fraud order the Electro-Chemical Ring Company was a trade name under which Walter G. Brownson and his son, Edward G. Brownson, operated a fraudulent business. It consisted in selling rings made out of ordinary, commercial iron, for \$2 under the claim that wearing the ring would result in the cure of such conditions as Bright's disease, diabetes, epilepsy, goiter, catarrh, cancer, etc. Subsequently attempts were made to continue that business under other names. In 1930, the scheme was revived under the name of "Walter Limber" and a fraud order has now been issued against the name of "Walter Limber."—*Journal of the American Medical Association*, May 23, 1931, p. 1816.

Earle Liederman, One of the "Big Muscle Boys."—The Federal Trade Commission has been doing some excellent work in the medical field by curbing the activities of some of the faddists, quacks, and nostrum exploiters. The Commission has been able to attack certain abuses in the medical field that could not be reached by the postal authorities or by the



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Scarlet Fever Toxin.—The Dick scarlet fever toxin is regarded as a safe and efficient immunizing agent against scarlet fever. The main drawback to its use appears to be that several injections, generally not less than five, must be given before such a degree of immunity is established that the subject no longer gives a positive Dick test.—*Journal of the American Medical Association*, February 21, 1931, p. 633.

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1 tablespoon Knox Sparkling Gelatine	7	6
¼ cup cold water.....
1½ cups hot water.....
1 teaspoonful whole mixed spices.....	....	....	....	....	....
½ teaspoon salt .....	....	....	....	....	....
¼ cup vinegar .....	....	....	....	....	....
½ cup chopped cabbage.....	50	1	....	3	....
½ cup chopped celery	60	1	....	2	....
¼ cup canned green peas.....	40	1	....	4	....
¼ cup cooked beets cubed.....	40	1	....	3	....
Total	10	....	....	12	88
One serving	2	....	....	2	15

Soak gelatine in cold water for five minutes. Bring to boil water, salt and spices. Pour on gelatine to dissolve it and add vinegar. Strain and set aside to cool. When jelly is nearly set, stir in the vegetables, pour into mold and chill until firm. Unmold on lettuce leaf or shredded lettuce and serve with mayonnaise or salad dressing. Garnish with sprig of parsley or strip of pimento.

CHOCOLATE PUDDING (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1½ tablespoons Knox Sparkling Gelatine.....	10	9	....	....	....
¼ cup cold water.....	....	....	....	....	....
2 cups milk	480	14	19	24	....
¾ cup boiling water.....	....	....	....	....	....
1 square chocolate grated (1 oz.).....	30	4	15	9	....
Pinch salt .....	....	....	....	....	....
Pinch cinnamon.....	....	....	....	....	....
¼ teaspoon vanilla .....	....	....	....	....	....
1 gr. saccharin.....	....	....	....	....	....
Total	27	34	33	546	....
One serving	4.5	6	5.5	91	....

Soak gelatine in cold water five minutes. Melt chocolate in boiling water. Add gelatine and stir until dissolved. Add milk, salt, cinnamon, vanilla and saccharin. Stir well and chill. When nearly set, beat until frothy, mold and chill until firm. Serve plain or with thin cream or whipped cream.



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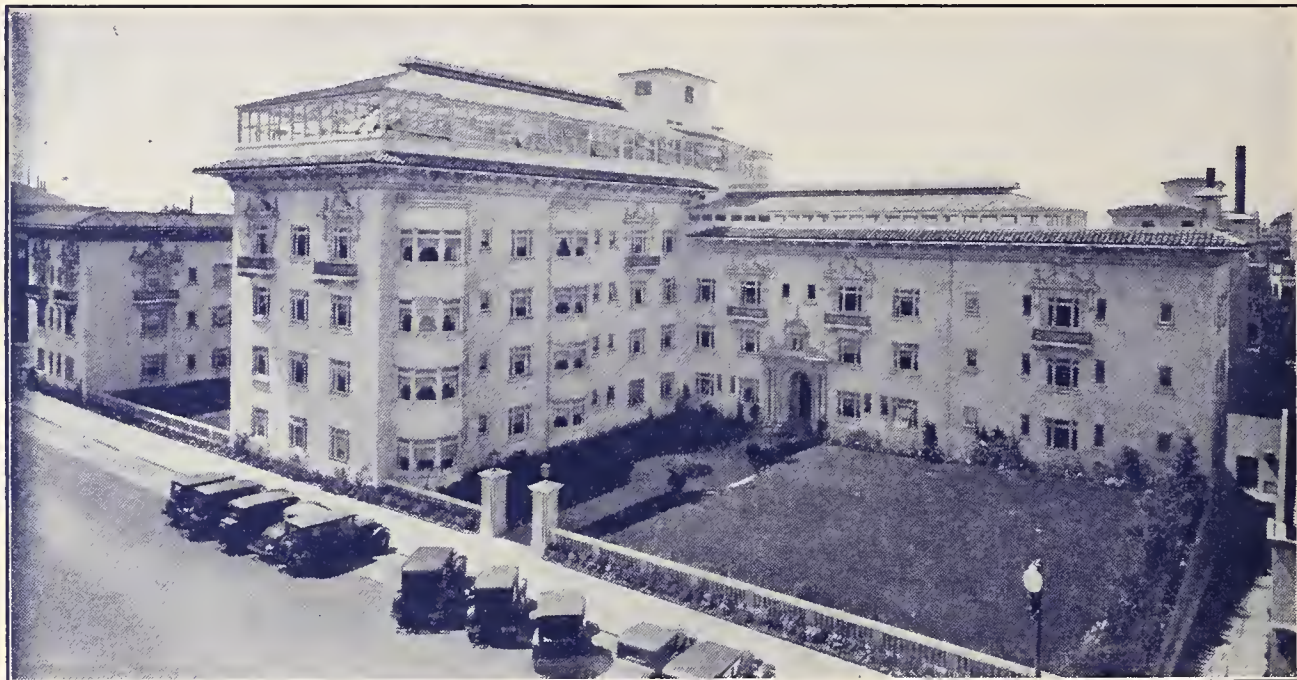
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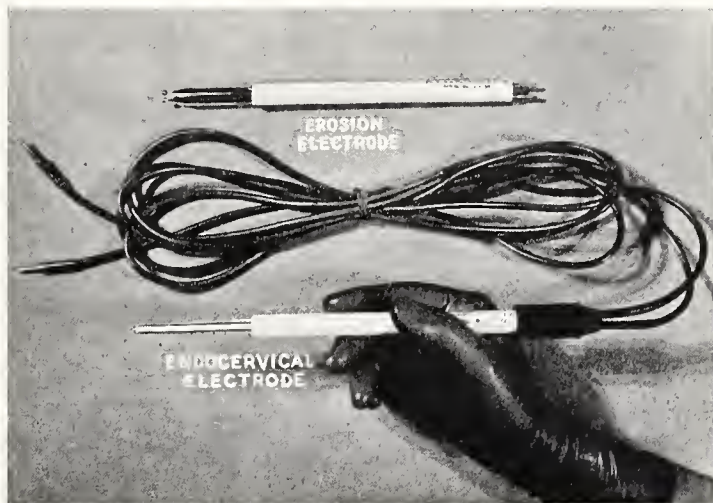
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| Fourth District—Calaveras, Fresno, Inyo, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare and Tuolumne Counties, Fred R. DeLappe (1932), 218 Beaty Building, 1024 J Street, Modesto. | Eighth District—Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter, Tehama, Yolo and Yuba Counties, Robert A. Peers (1933), Colfax. | Joseph Catton (1932), 825 Medico-Dental Building, 490 Post Street, San Francisco.                     |
|                                                                                                                                                                                                            | Ninth District—Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, Siskiyou, Solano, Sonoma and Trinity Counties, Henry S. Rogers (1934), Petaluma.                                                          | T. Henshaw Kelly (1933), 830 Medico-Dental Building, 490 Post Street, San Francisco.                  |
|                                                                                                                                                                                                            |                                                                                                                                                                                                             | George G. Reinle (1934), 204 Dalziel Building, 532 15th Street, Oakland.                              |
|                                                                                                                                                                                                            |                                                                                                                                                                                                             | <b>Ex-officio</b>                                                                                     |
|                                                                                                                                                                                                            |                                                                                                                                                                                                             | The President, the President-elect, the Speaker of the House, the Secretary-Treasurer and the Editor. |

## Standing Committees

| Executive Committee                                                                                                                                                                                                                             | Committee on Membership and Organization                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| The President, the President-Elect, the Speaker of the House of Delegates, the Chairman of the Council, the Secretary-Treasurer, the Editor, and the Chairman of the Auditing Committee. (Chairman, T. Henshaw Kelly; Secretary, Emma W. Pope.) | Harlan Shoemaker, Los Angeles.....1932                                                 |
| <b>Auditing Committee</b>                                                                                                                                                                                                                       | Jesse W. Barnes, Stockton.....1933                                                     |
| T. Henshaw Kelly (Chairman).....San Francisco                                                                                                                                                                                                   | Le Roy Brooks (Chairman), San Francisco.....1934                                       |
| Joseph Catton.....San Francisco                                                                                                                                                                                                                 | The Secretary.....Ex-officio                                                           |
| Karl L. Schaupp.....San Francisco                                                                                                                                                                                                               | <b>Committee on History and Obituaries</b>                                             |
| <b>Committees on Associated Societies and Technical Groups</b>                                                                                                                                                                                  | Charles D. Ball (Chairman), Santa Ana.....1932                                         |
| Harold A. Thompson, San Diego.....1932                                                                                                                                                                                                          | Emmet Rixford, San Francisco.....1933                                                  |
| William Duffield, Los Angeles.....1933                                                                                                                                                                                                          | George D. Lyman, San Francisco.....1934                                                |
| R. Manning Clarke (Chairman), Los Angeles.....1934                                                                                                                                                                                              | The Secretary.....Ex-officio                                                           |
| <b>Committee on Extension Lectures</b>                                                                                                                                                                                                          | The Editor.....Ex-officio                                                              |
| James F. Churchill, San Diego.....1932                                                                                                                                                                                                          | <b>Committee on Publications</b>                                                       |
| Robert A. Peers, Colfax.....1933                                                                                                                                                                                                                | Morton R. Gibbons, San Francisco.....1932                                              |
| Robert T. Legge (Chairman), Berkeley.....1934                                                                                                                                                                                                   | Frederick Gundrum, Sacramento.....1933                                                 |
| <b>Committee on Health and Public Instruction</b>                                                                                                                                                                                               | Percy T. Magan (Chairman), Los Angeles.....1934                                        |
| Fred B. Clarke (Chairman), Long Beach.....1932                                                                                                                                                                                                  | The Secretary.....Ex-officio                                                           |
| Henry S. Rogers, Petaluma.....1933                                                                                                                                                                                                              | The Editor.....Ex-officio                                                              |
| Langley Porter, San Francisco.....1934                                                                                                                                                                                                          | <b>Committee on Public Policy and Legislation</b>                                      |
| <b>Committees on Hospitals, Dispensaries and Clinics</b>                                                                                                                                                                                        | Junius B. Harris (Chairman), Sacramento.....1932                                       |
| John C. Ruddock (Chairman), Los Angeles.....1932                                                                                                                                                                                                | Joseph Catton, San Francisco.....1933                                                  |
| Gayle G. Moseley, Redlands (deceased).....1933                                                                                                                                                                                                  | William Duffield, Los Angeles.....1934                                                 |
| Karl L. Schaupp, San Francisco.....1934                                                                                                                                                                                                         | The President-elect.....Ex-officio                                                     |
| <b>Committee on Industrial Practice</b>                                                                                                                                                                                                         | <b>Committee on Scientific Work</b>                                                    |
| Packard Thurber (Chairman), Los Angeles.....1932                                                                                                                                                                                                | R. Manning Clarke, Secretary Section of General Medicine, Los Angeles.....Ex-officio   |
| Mott H. Arnold, San Diego.....1933                                                                                                                                                                                                              | Stanley H. Mentzer, Secretary Section of General Surgery, San Francisco.....Ex-officio |
| Daniel Crosby, Oakland (resigned).....1934                                                                                                                                                                                                      | Karl L. Schaupp, San Francisco.....1932                                                |
| <b>Committee on Medical Economics</b>                                                                                                                                                                                                           | F. M. Pottenger, Monrovia.....1933                                                     |
| John H. Graves (Chairman), San Francisco.....1932                                                                                                                                                                                               | Lemuel P. Adams, Oakland.....1934                                                      |
| Ruggles A. Cushman, Santa Ana.....1933                                                                                                                                                                                                          | Emma W. Pope (Chairman).....Ex-officio                                                 |
| Lyell C. Kinney, San Diego.....1934                                                                                                                                                                                                             | <b>Special Committee on Clinical and Research Prizes*</b>                              |
| <b>Committee on Medical Education and Medical Institutions</b>                                                                                                                                                                                  | Emmet Rixford, San Francisco.....1932                                                  |
| George Dock (Chairman), Pasadena.....1932                                                                                                                                                                                                       | George Dock (Chairman), Pasadena.....1933                                              |
| George G. Hunter, Los Angeles.....1933                                                                                                                                                                                                          | Eugene S. Kilgore, San Francisco.....1934                                              |
| H. A. L. Ryfkogel, San Francisco.....1934                                                                                                                                                                                                       |                                                                                        |
| <b>Committee on Medical Defense</b>                                                                                                                                                                                                             |                                                                                        |
| George G. Reinle, Oakland.....1932                                                                                                                                                                                                              |                                                                                        |
| Fred R. DeLappe, Modesto.....1933                                                                                                                                                                                                               |                                                                                        |
| Henry Snure, Sr. (Chairman), Los Angeles.....1934                                                                                                                                                                                               |                                                                                        |

\* Each year the California Medical Association offers two prizes of One Hundred and Fifty Dollars each, with certificates of award, for the two best papers on clinical and research subjects. Full information concerning the conditions laid down in these competitions may be had by addressing the Association Secretary.

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| DELEGATES                                       | ALTERNATES                      |
|-------------------------------------------------|---------------------------------|
| Dudley Smith, Oakland.....(1932-1933)           | Le Roy Brooks, San Francisco    |
| William Duffield, Los Angeles.....(1932-1933)   | William H. Gilbert, Los Angeles |
| Fitch C. E. Mattison, Pasadena.....(1932-1933)  | Fred B. Clarke, Long Beach      |
| Irving S. Ingber, San Francisco.....(1931-1932) | Charles A. Dukes, Oakland       |
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|                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <b>Los Angeles County Medical Association</b><br>412 Union Insurance Building<br>1008 West Sixth Street, Los Angeles<br>President, Carl R. Howson, 711 Merritt Building, 307 West Eighth Street, Los Angeles.<br>Secretary, Harry H. Wilson, 412 Union Insurance Building, 1008 West Sixth Street, Los Angeles. | <b>San Diego County Medical Society</b><br>Fourteenth Floor, Medico-Dental Building, 233 A Street, San Diego<br>President, Leslie H. Redelings, 1310 Medico-Dental Bldg., 233 A Street, San Diego.<br>Secretary, William H. Geistweit, Jr., 810 Medico-Dental Building, 233 A Street, San Diego. | <b>Tehama County Medical Society</b><br>President, F. H. Bly, Red Bluff.<br>Secretary, F. J. Bailey, Red Bluff.                                                                                                                                                                                                                                                                                                                              |
| <b>Marin County Medical Society</b><br>President, H. O. Howitt, 311 Lincoln Ave., San Rafael.<br>Secretary, L. L. Robinson, Larkspur.                                                                                                                                                                           | <b>San Francisco County Medical Society</b><br>2180 Washington Street, San Francisco<br>President, Charles P. Mathé, Room 1831, 450 Sutter Street, San Francisco.<br>Secretary, T. Henshaw Kelly, 2180 Washington Street, San Francisco.                                                         | <b>Tulare County Medical Society</b><br>President, H. G. Campbell, 117 West Honolulu Street, Lindsay.<br>Secretary, S. S. Ginsberg, Bank of Italy Building, Visalia.                                                                                                                                                                                                                                                                         |
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| <b>Merced County Medical Society</b><br>President, Edward A. Jackson, Dos Palos.<br>Secretary, Fred O. Lien, Shaffer Building, Merced.                                                                                                                                                                          | <b>San Luis Obispo County Medical Society</b><br>President, Howard A. Gallup, 774 Marsh Street, San Luis Obispo.<br>Secretary, Allen F. Gillihan, San Luis Obispo.                                                                                                                               | <b>Ventura County Medical Society</b><br>President, H. W. Wright, Ojai.<br>Secretary, R. B. Armistead, 735 E. Main Street, Ventura.<br><br><b>Yolo-Colusa-Glenn County Medical Society</b><br>President, Thomas H. Brown, Orland.<br>Secretary, W. E. Bates, 719 Second Street, Davis.<br><br><b>Yuba-Sutter County Medical Society</b><br>President, Allen E. Gray, I. O. O. F. Bldg., Marysville.<br>Secretary, Fred W. Didier, Wheatland. |

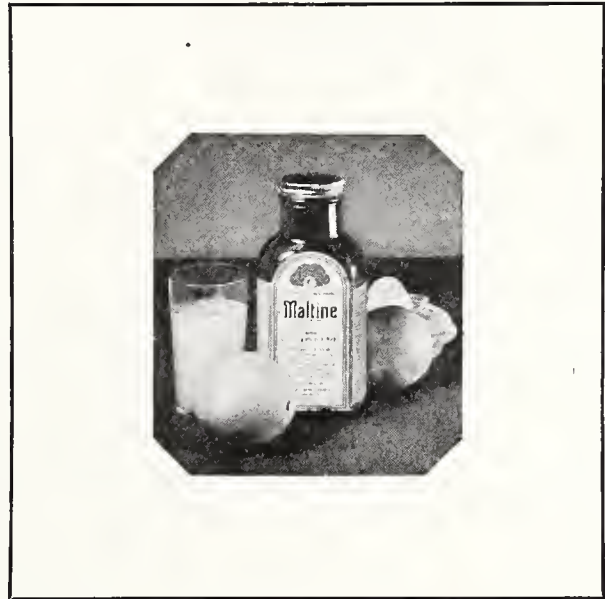


# THE VITAMIN QUESTION

While the importance of vitamins in the dietary has been recognized for years, the discovery of each new vitamin tends to focus more attention upon that particular vitamin and less upon the others. It is also natural that manufacturers of a product having a high potency of any single vitamin should stress the value of that one above all others.

As research work proceeds, however, not only are new vitamins being discovered, but it is becoming increasingly difficult to separate, definitely, the functions of one vitamin from those of another. For example, investigations appear to show that Vitamin D tends to prevent dental caries and it also appears that Vitamin C is likewise of value in the prevention of tooth decay. It has been shown that an excess of Vitamin D increases the tendency to infection unless the ingestion of Vitamin A is correspondingly increased. Research has indicated that not only Vitamin A, but also Vitamin B complex is growth promoting. In a word, the sympathetic unity of action of vitamins must have the physician's careful consideration.

In a recent article by Hoobler, entitled "Use of Vitamin B in Diets of Infants" (Jl. A. M. A., Feb. 28, 1931, page 676), he says: "An important research conducted by Harris and Moore Hypervitaminoses and Vitamin Bal-



ance: an Instance of Vitamin Balance, Biochem, J. 23: 1114) showed that there exists a definite balance among Vitamins E and G; by greatly increasing Vitamins A and D in diets, an otherwise adequate amount of Vitamin B is made inadequate, leading to death of animals. One should be careful not to overdose with cod liver oil and viosterol unless at the same time an increasing quantity of Vitamin B is also added to the diet."

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Los Angeles, 821 Associated Realty Building  
Sacramento, Box 1159  
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Director, Giles S. Porter, Los Angeles.

**Board of Medical Examiners of the State of California**  
San Francisco, 623 State Building  
Los Angeles, 812 Associated Realty Building  
510 West Sixth Street

Sacramento, 420 State Office Building  
President, P. T. Phillips, Santa Cruz.  
Secretary, C. B. Pinkham, 623 State Building, San Francisco.

**Southern California Medical Association**  
President, Fred B. Clarke, 1006 Pacific Southwest Building, Long Beach.  
Secretary, Carl R. Howson, 711 Merritt Bldg., 307 W. Eighth Street, Los Angeles.

**California Northern District Medical Society**  
President, George H. Sanderson, 809 Medico-Dental Building, Stockton.

Secretary, D. Schuyler Pulford, Woodland Clinic, Woodland.

### Better Health Foundation

President, Reginald Knight Smith, 490 Post Street, San Francisco.  
Chairman Executive Committee, Walter B. Coffey, 65 Market Street, San Francisco.  
Treasurer, John Galloway, 1195 Bush Street, San Francisco.  
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Sonoma County—President, Mrs. Henry S. Rogers, Petaluma; Secretary, Mrs. Sara J. Pryor, Santa Rosa.

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The institutions here listed have announcements in this issue of CALIFORNIA AND WESTERN MEDICINE

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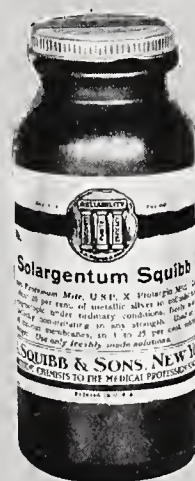
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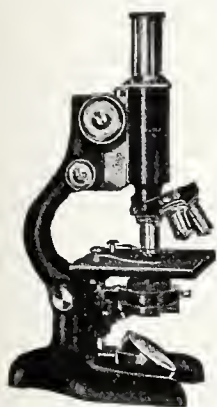
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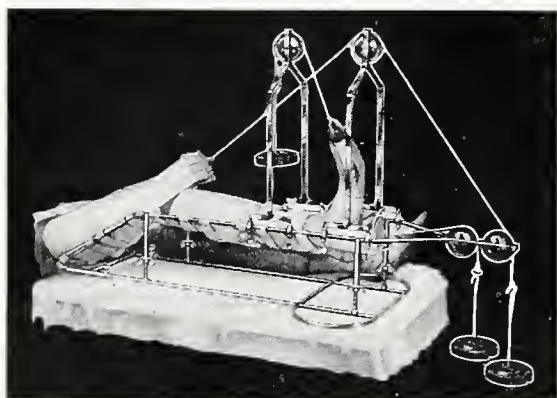
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## BOOK REVIEWS

## List of Books Received

## BOOKS RECEIVED

**Cutaneous X-Ray and Radium Therapy.** By Henry H. Hazen, Professor of Dermatology, Medical Department of Georgetown University. Pp. 166. Illustrated. Price, \$3 net. St. Louis: The C. V. Mosby Company. 1931.

**Bedside Interpretation of Laboratory Findings.** By Michael G. Wohl, M. D., Associate Professor of Experimental Medicine, Temple University Medical School. With an introduction by Joseph McFarland, M. D., Sc. D. Pp. 321. Illustrated. Price, \$6 net. St. Louis: The C. V. Mosby Company. 1931.

**The Perils of Food Deficiency and Nature's Healing Bounty.** By Natta Fisher Dygert and Bonnie Lucinda Fisher. Pp. 64. Boston: The Christopher Publishing House. 1931.

**Eye, Ear, Nose and Throat Manual for Nurses.** By Roy H. Parkinson, M. D., Visiting Oculist and Aurist to St. Joseph's Hospital, San Francisco, California. Second edition. Pp. 223. Illustrated. Price, \$2.25 net. St. Louis: The C. V. Mosby Company. 1931.

**Medicine—Science and Art: Studies in Interrelations.** By Alfred E. Cohn. Pp. 212. Price, \$4 net. Chicago: The University of Chicago Press. 1931.

**Medical Jurisprudence.** By Carl Scheffel, Ph. B., M. D., LL. B. Pp. 313. Philadelphia: P. Blakiston's Son & Co., Inc.

**Modern Proctology.** By Marion C. Pruitt, M. D., L. R. C. P., S. (Ed.), F. R. C. S. (Ed.), F. A. C. S. Atlanta, Georgia. Pp. 404, with 233 illustrations. Price, \$8 net. St. Louis: The C. V. Mosby Company. 1931.

**Einführung in Die Medizinische Röntgentechnik.** By von Maximilian F. Block, Röntgentechniker in Wien. Pp. 154. Mit 107 Abbildungen, davon 19 Röntgenaufnahmen und 19 Tabellen. Wien: Verlag von Wilhelm Maudrich. 1931.

## BOOK REVIEWS

**Deformaten und Kosmetische Operationen der Weiblichen Brust.** By Hermann Biesenberger. Pp. 209. Illustrated. Wien: Verlag von Wilhelm Maudrich, 1931.

This book describes in detail the various cosmetic operations on the pendulous breast. It is copiously illustrated and well printed. It will be of value to surgeons engaged in plastic and cosmetic surgery. L. E.

**A Handbook on Diseases of Children, Including Dietetics and the Common Fevers.** By Bruce Williamson. Pp. 290. Illustrated. New York: William Wood & Company, 1931.

The above book is what the name implies, namely, a brief outline of the diseases seen in children, with a note concerning treatment and a list of prescriptions at the end of the book. The author refers the reader to other textbooks and monographs when the scope of the subject is too wide for his handbook. The book is brief but fairly complete and has the additional advantage of giving the European point of view, which always adds a little zest to the subject, even if it occasionally provokes a smile. H. E. T.

**Medical Associates of My Early Days in Los Angeles.** By George L. Cole. Pp. 131. Illustrated. (Reprint from 1930 Los Angeles County Medical Association Bulletins.) Printed in Los Angeles, California, in U. S. A., in December 1930.

This is a small volume covering, in first-person style, the author's thirty-four years of medical contacts at Los Angeles. It is reprinted from accounts appearing in that city's County Medical Association's Bulletins during 1930. With numerous illustrations and with touches of intimacy and wholesome appraisal in short biographic notes, Cole recalls many practitioners of Southern California. In it are accounts of the pioneers Den, Edgar, and Griffith; the early writers and founders, such as Widney, Orme, Lindley, Kurtz, and Brainerd, together with pleasing notes on many others. While no attempt has been made to follow the development of institutions, there are references to the beneficences of such donors as Barlow, Del Amo, and Norman Bridge. Cole's contribution, Kress' History of the Medical Profession in Southern California and Ball's Medical Account of Orange County, all testify that in the recording of medical history the south has fared very well. H. H.

(Continued on Page 14)

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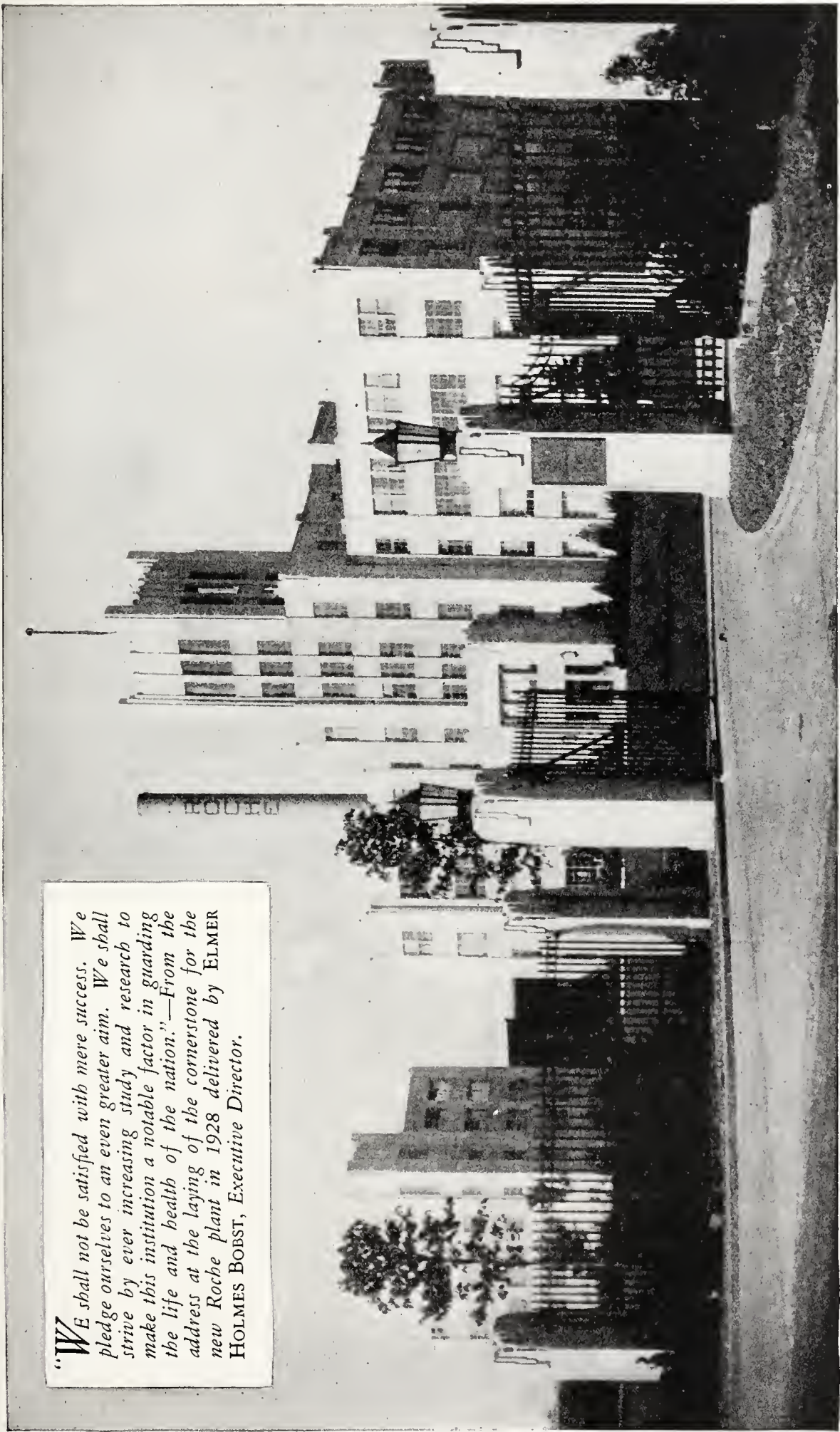
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### BOOK REVIEWS

(Continued from Page 11)

**The Pathology of Internal Diseases.** By William Boyd. Pp. 888. Illustrated. Philadelphia: Lea & Febiger, 1931. Price, \$10.

This textbook of eight hundred and eighty-eight pages has blended well the discussions of pathological physiology and pathological anatomy; admirably correlating the relation of symptoms to lesions. The presentation of the pathology of function is beyond the scope of an elementary text in pathology due to the vastness and complexity of the material to be covered. Boyd's text, however, is a book for the fourth-year medical students who have already imbibed their fundamentals and also for the practitioner. The chief criticism is that it is too short, because an inevitable compression has resulted which, in some instances, prevents the presentation of a satisfactory picture from the clinical aspect. The necessity for the practitioner and the student to think in terms of pathology, to view each patient with a roentgen-ray eye, visualizing the lesions present, is forcibly displayed throughout.

D. A. W.

**Through the Alimentary Canal with Gun and Camera—A Fascinating Trip to the Interior.** Personally conducted by George S. Chappell. Pp. 231. Illustrated. New York: Frederick A. Stokes Company, 1930. Price, \$2.

Since it has been stated that the premedical curriculum is far too long and quite devoid of matters practical, and that the medical one is rather short and sadly overburdened with sere auriferous lore, this book must be hailed as the first serious attempt to provide us with scientific knowledge in easily assimilable form. To the profession in general, and the undergraduate in particular, it can be recommended, along with Gray and Spalteholz, Starling, and Thompson (provided always, of course, that they have perused the "Cruise of the Kawa" first).

L. G.

**Laboratory Medicine—A Guide for Students and Practitioners.** By Daniel Nicholson. Pp. 433. Illustrated. Philadelphia: Lea & Febiger, 1930.

The author's aim of producing a laboratory manual specifically adapted to the needs of the medical practitioner has been well carried out.

The subject-matter of the book has been selected with intelligent discrimination, and a rather unique feature is the inclusion of a considerable amount of valuable data and information not usually found in a laboratory manual and most frequently obtained only by reference to widely different sources.

The material is well arranged and exact cross references by page number, together with direct footnote reference to literature, form a gratifying element.

The book is carefully and well written and appropriate details are accurately, though briefly, considered.

H. A. W.

**Medical Jurisprudence, A Statement of the Law of Forensic Medicine.** By Elmer D. Brothers. Third ed. Pp. 309. St. Louis: The C. V. Mosby Company, 1930. Price \$3.50.

The author of this very small volume, which is a rather compact delineation of medico-legal data, has avowedly endeavored to create a ready reference volume for the medical student and busy general practitioner. There is no attempt to make an exhaustive study of the various ramifications of the subject but rather to give an abridged compendium of data for ready reference; and introduction to the fundamental ideas of medical jurisprudence.

While medical matters are not discussed as such, nevertheless the book has more appeal to the medical student and general practitioner than to the lawyer. The subject matter covers the essentials of court procedure, types of testimony, rules of evidence, definition of so-called privileged communications, contractual relations of doctor to patient, the responsibility of the physician as to acceptance of demands for his service, etc.

A great deal of space is devoted to the everpresent subject of malpractice and reasonably so.

The whole volume makes very enjoyable reading as it is couched in nontechnical language and reads very much like an interesting novel. I believe it is to be considered a valuable asset in any medical man's library.

L. I. N.

**Practical Treatise on Diseases of the Digestive System.** By L. Winfield Kohn. Two volumes. Pp. 1125. Illustrated. Philadelphia: F. A. Davis Company, 1930. Price, \$12.

This book is a diligent compilation covering the entire gastro-intestinal field mostly from the outlook of the internist and laboratory specialist. The surgical diseases being of such predominating importance in the gastro-intestinal field, it seems doubtful to me whether the

(Continued on Page 18)

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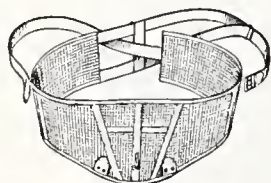


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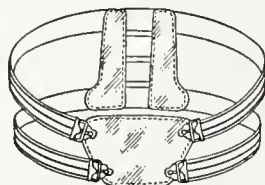
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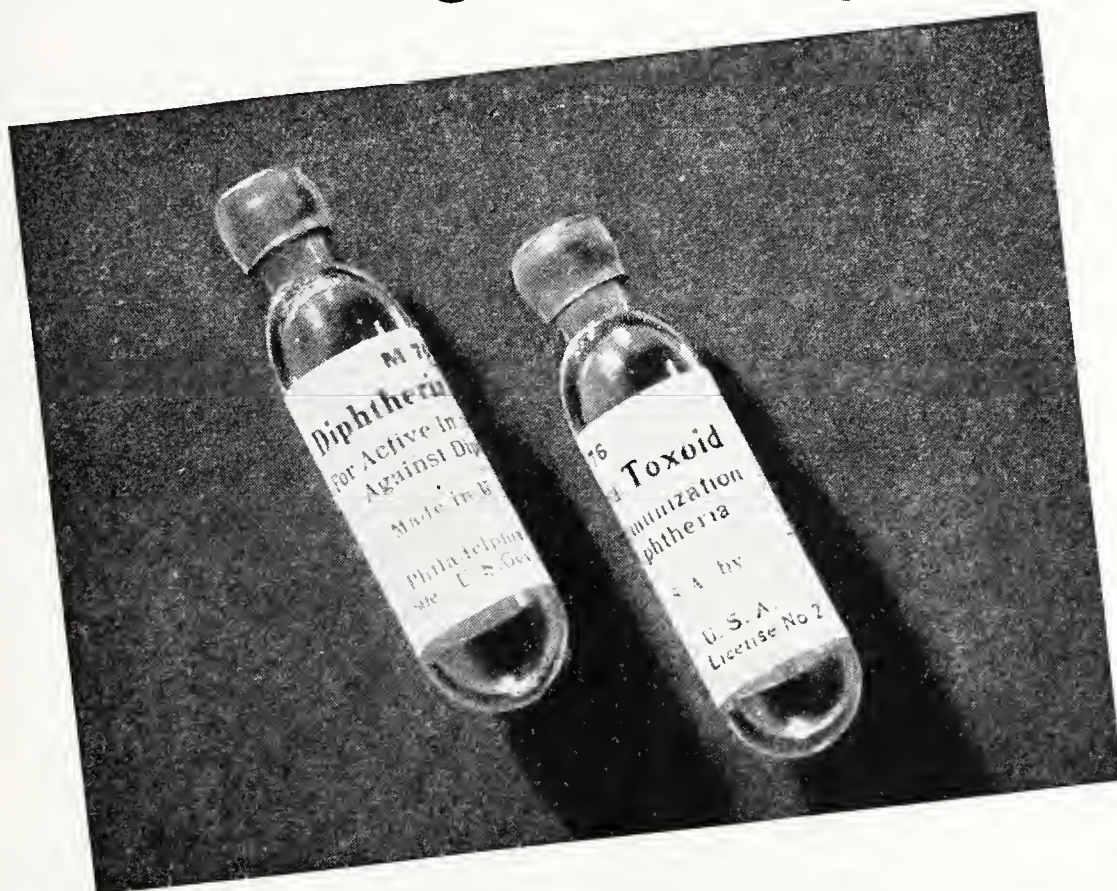
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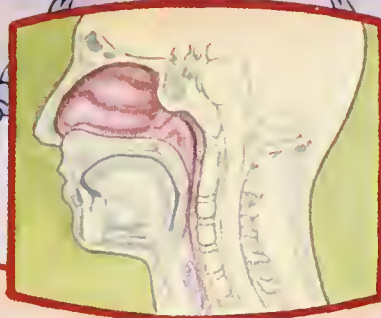
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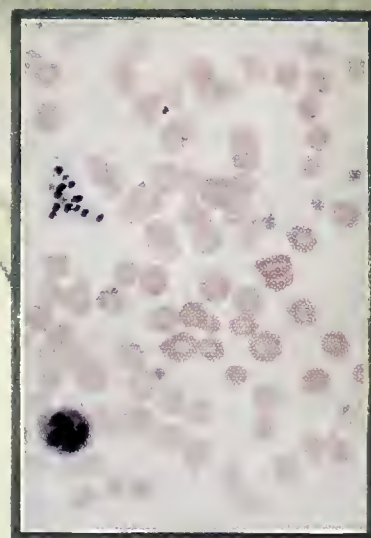


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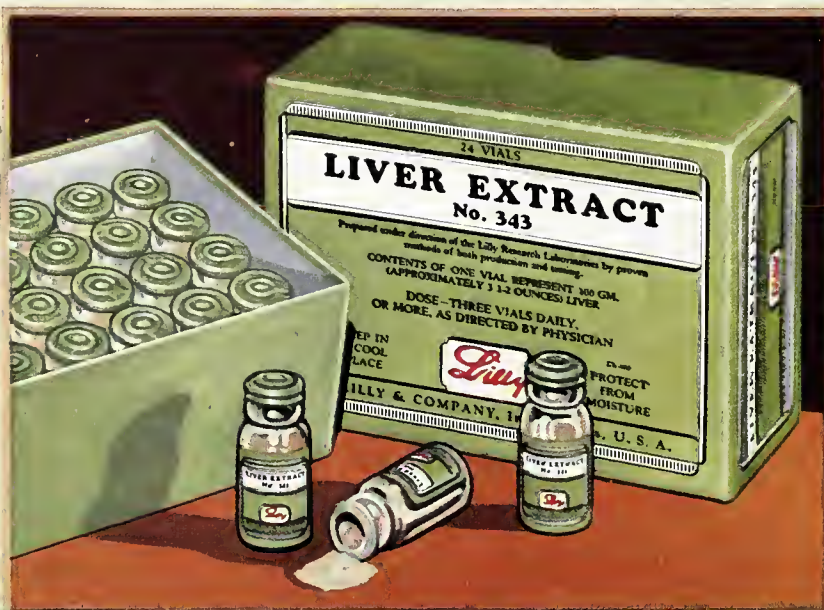
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## BOOK REVIEWS

(Continued from Page 14)

subject can be done full justice by a medical man alone. This defect is evident in the chapters of such surgical diseases as appendicitis, cholelithiasis, cancer of the stomach, cancer of the rectum, etc. For instance, one looks in vain for any practically helpful discussion of the differential diagnosis of appendicitis. The significance of intermittent jaundice for diagnosis of stone in the bile ducts is not mentioned, while nine different types of jaundice among them—psychic jaundice, menstrual jaundice, jaundice from profound constipation—are described. This one example illustrates the theoretical character of this book.

The arrangement of the book is more that of an encyclopedia which leads to repetition and makes for absence of broad outlines. This fact makes it confusing to the student and beginner. Neither does it give the more experienced man and specialist the information he is looking for in rare or exceptionally puzzling cases. To the surgeon this book will give information on the laboratory side and about some purely medical conditions.

(Continued on Page 20)



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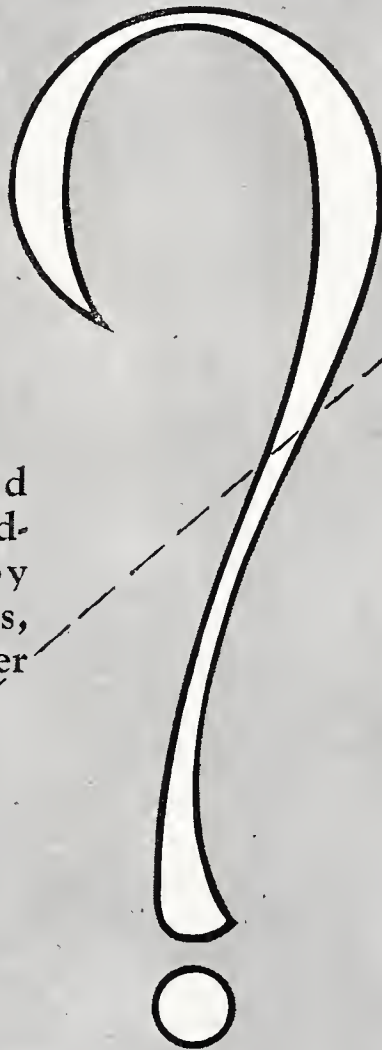
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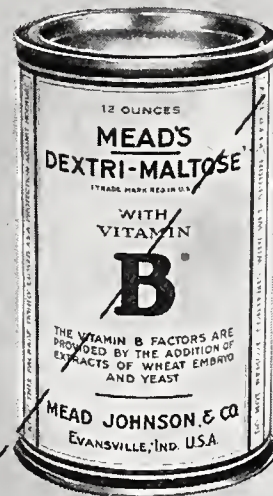
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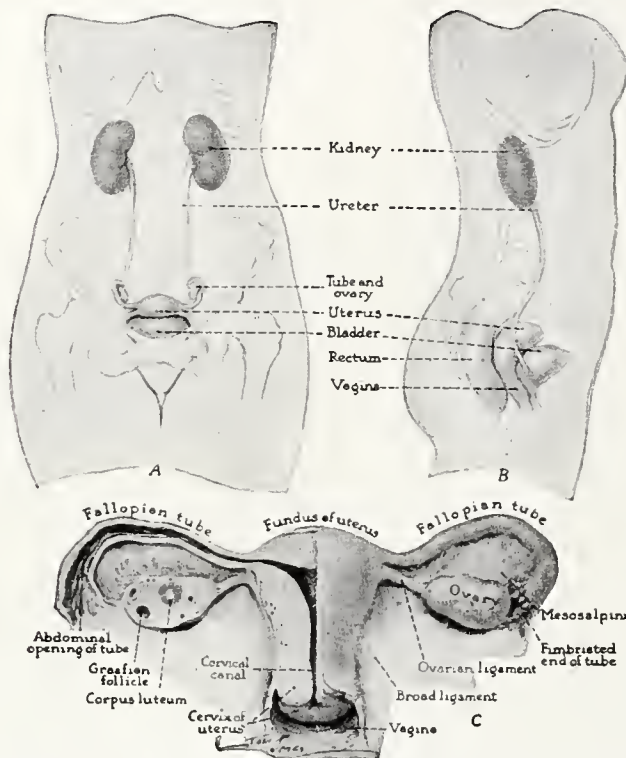
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## BOOK REVIEWS

(Continued from Page 18)

The most valuable chapters to me were the ones on extra-alimentary diseases in relation to the gastrointestinal tract, and the chapters on diets and therapeutics.

The bibliography which is given, especially the German one, is often antiquated. E. G.

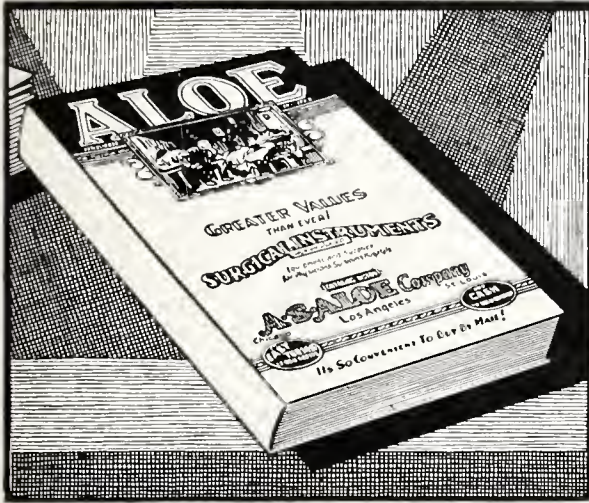
**Food Allergy—Its Manifestations, Diagnosis and Treatment with a General Discussion of Bronchial Asthma.**  
By Albert H. Rowe. Pp. 442: Philadelphia. Lea & Febiger, 1931. Price, \$5.

It is not surprising that the gradual unfolding of so intricate a subject as clinical allergy has led to the development of great individualism both in the explanation of allergic phenomena and in methods of combating allergic symptoms. The monograph of Dr. Albert H. Rowe, the first comprehensive one on this subject, presents in great detail the author's experience with food-sensitive patients, and his methods of treating their manifold symptoms. The keystone of the arch which Doctor Rowe has built about this phase of allergy is the diagnosis and treatment of allergic manifestations due to foods by the "elimination diets." The great importance of food idiosyncrasies as a cause of many otherwise unexplained gastro-intestinal symptoms was stressed by Osler many years ago. He was among the first to suggest that the "anaphylactic key" would eventually unlock many of the myteries underlying angioneurotic edema and allied conditions. The physician will be somewhat surprised to learn that a host of heretofore unexplained symptom complexes are now satisfactorily explained by food allergy: migraine, neuralgia, transient blindness, paresthesias, arthralgia and canker sores, to mention but a few. Those who are studying allergic patients intensively are willing to admit that clinical instances of "allergic toxemia" due to food allergy exist and that spectacular results follow the removal from the diet of the offending food or foods. Our limited diagnostic facilities, however, often make a clear-cut diagnosis difficult. As a diagnostic and therapeutic aid the "elimination diet" method should prove a great help wherever it can be carried out with the precision and coöperation to make it of real value. The reviewer feels

(Continued on Page 26)



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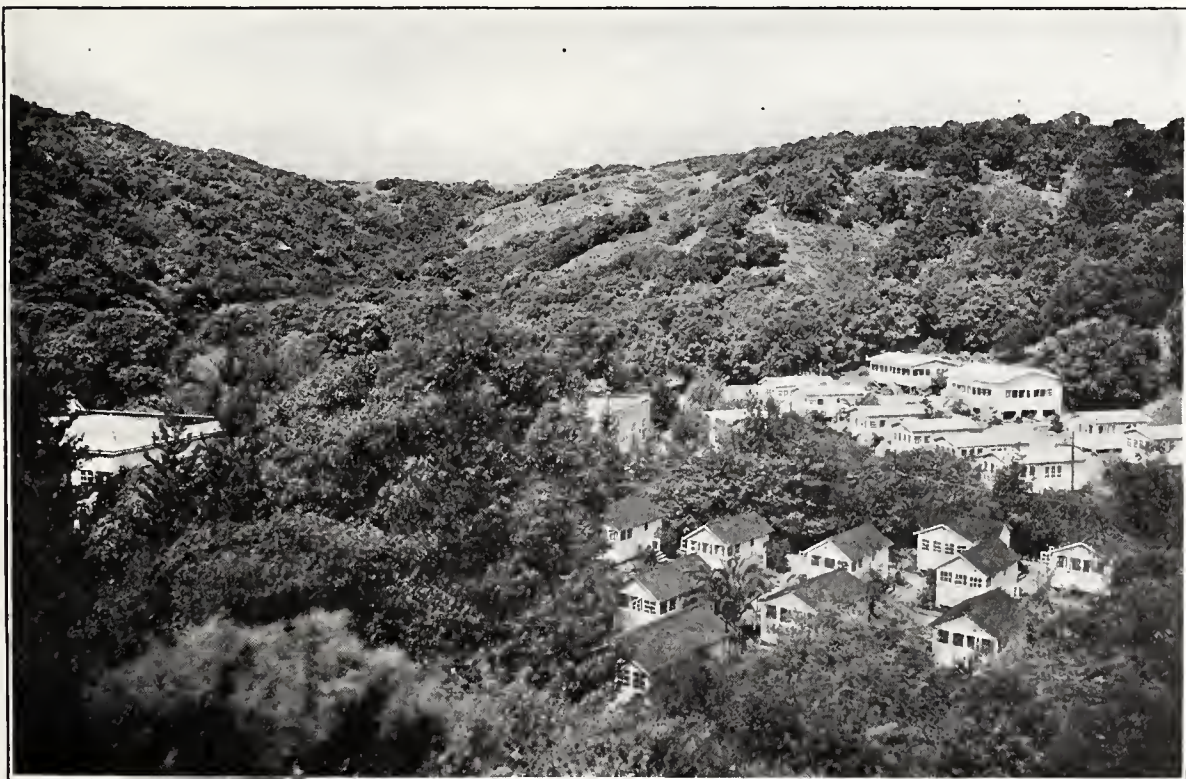


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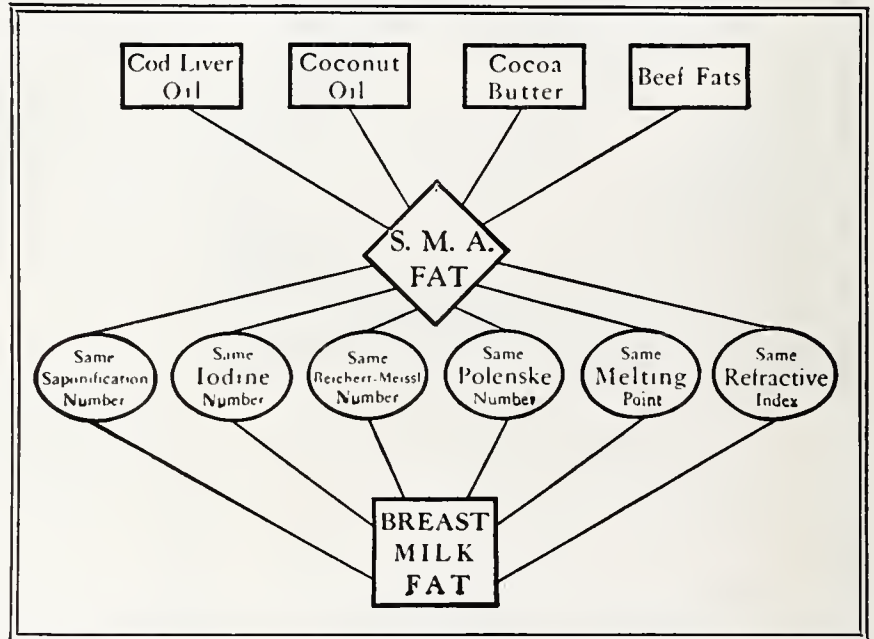
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### **BOOK REVIEWS**

(Continued from Page 20)

that the method should be given a fair trial by everyone who observes and treats these patients under controlled conditions. Doctor Rowe's carefully presented case records amply support his thesis and his own results more than justify his enthusiasm over this therapeutic approach. The reviewer must particularly laud the great help which the monograph affords the physician in planning wheat, egg and milk-free diets, as well as the valuable menus and recipes which make diet trial a more practical procedure.

Whereas the text deals mainly with food allergy the author also discusses the inhalant and miscellaneous types of sensitization which result in the better understood conditions—asthma, eczema, urticaria, and angio-neurotic edema. These subjects he has amplified from his own experience as well as reviewing the viewpoint of others.

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## TRUTH ABOUT MEDICINES

(Continued from Page 26)

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The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

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(Continued on Page 34)





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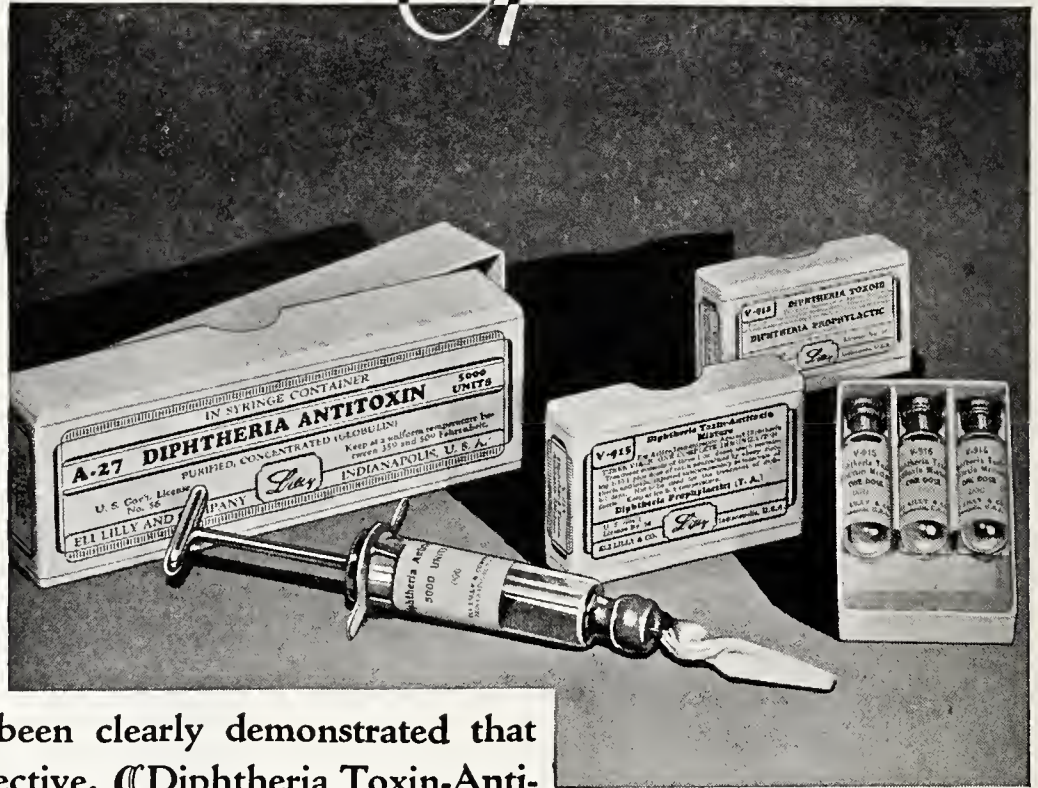
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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXV

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No. 3

## SOME COSTS OF ILLNESS PROBLEMS\*

By JOHN H. GRAVES, M. D.  
San Francisco

THE studies which have been made by the Committee on Medical Economics, as one of the standing committees authorized in the by-laws of the California Medical Association, have been designed to ascertain:

First, the character and cost of medical services in California, and the ability of our citizens to pay for the same;

Second, what procedures could be instituted to increase the efficiency of professional medical services; what could be done to lower the costs; and how could the various factors that make up the costs of medical care be marked off for the purpose of special investigation.

### THE STUDIES OF THE CALIFORNIA MEDICAL ASSOCIATION COMMITTEE ON MEDICAL ECONOMICS

In order to do these things, the committee has studied:

1. Various systems of socialized health insurance in foreign countries as regards the history, development, type of service and cost to the people.
2. Communistic control of medical activities as it exists in Soviet Russia.
3. Various plans in vogue in America that may be best defined as activities of health departments of national, state, county and municipal scope.
4. Medical service as rendered to employees of large corporations, when the systems were maintained by a system of wage deductions.
5. Various types and costs of medical service as rendered to the members of certain fraternal organizations such as lodges, labor unions, etc.
6. Health insurance policies and the promises contained therein, as sold by the private insurance companies.
7. Medical and surgical treatment and sickness prevention service as well as hospitalization, as

\* Report of the California Medical Association Committee on Medical Economics. (See also page 447, June 1931, California and Western Medicine.)

\* Read before the fourth general meeting of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

Editor's Note.—This report by Doctor Graves and the papers which immediately follow by Doctors Crosby, Brown, French, Reynolds, Pomeroy, and Kelly, trench on the domain of medical economics. These papers were read at the 1931 California Medical Association annual session at San Francisco and are printed in this September issue as a symposium on the subject of medical economics.

The discussion of the above and several related papers will be found on page 167.

furnished by coöperative nonprofit organizations such as is given at the French and German (now the Franklin) Hospitals of San Francisco.

8. Investigation of certain so-called hospital organizations operated for profit, purporting to furnish medical and surgical service and hospitalization to subscribers.

9. Investigation of the basic costs of living, such as rent, heat, light, food, clothing, etc., as well as wage schedules, unemployment and various other factors that enter into the economic and social life of the citizens of the State of California.

10. Cost to the patient and type of service rendered by physicians and surgeons in private practice.

11. Cost of medical education and costs to a physician of maintaining a private practice.

### THANKS TO THE NATIONAL COMMITTEE ON THE COSTS OF MEDICAL CARE

Your committee has endeavored to keep in touch with numerous agencies interested in this and similar problems and desires to express its sincere appreciation to the National Committee on the Costs of Medical Care for data furnished, and for the sympathetic and helpful attitude shown in the correspondence with that body, as well as that experienced through the personal visit of one of their representatives to the chairman of this committee.

### SOME OUTSTANDING FEATURES OF THESE MEDICAL ECONOMIC PROBLEMS

The following brief outline gives but a faint idea of the magnitude of the effort which is necessary to secure basic and necessary facts from which conclusions can be drawn, and which will make safe foundations for the erection of a system of health insurance that will be practical for the public and profession of our State. This paper must content itself, if it can call attention to a few of the highlights on one or two of the innumerable features of this many-sided problem.

There seem to be two outstanding features of the costs of illness problem that have excited more interest than the others. The first being how to furnish full medical and surgical treatment to the man of moderate means, that is, to the so-called white collar citizen, without leaving him and his family in a state of economic dependency; the other being the development of a system for the prevention of sickness that will lower the rate of disability due to disease and which will prolong the life of the individual.

In its studies, your committee has endeavored to keep in mind the fundamental principles of the government under which we live, and has striven to eliminate as undesirable everything which would violate principles that are essential for the preservation of the reasonable rights of our citizens.

Careful investigations of the various systems of state control, which means political control of the problems of the sick, as well as direction of the activities of the medical profession by political powers, convince your committee that the experiences of foreign governments along these lines, while worthy of study, do not furnish a solution of our problems.

Any step in the direction of complete socialization of medicine, leading toward communism, we believe, would be unacceptable to the American people, as well as to the profession. In fact, the attitude of the public and the profession toward further extension of powers of our various governmental health departments, seems to be toward limitation rather than extension.

Your committee sees much to commend in the coöperative nonprofit organizations furnishing medical and surgical care and hospitalization, but the arrangements of such organizations for service with the profession demand extensive revision. The advantages which are supposed to come to physicians through the large amount of clinical material, plus the prestige that a staff appointment is supposed to convey, only too frequently are paid for by physicians through loss of reasonable fees that should be paid by persons amply able to afford such.

The committee unhesitatingly condemns the so-called hospital organizations which are operated for a profit, since such organizations under lay control exploit both the people and the medical profession.

The investigations by your committee of the services rendered to patients in private practice convince us that it is of a much higher and efficient type and rendered at a much lower cost than the public has been led to believe.

#### ILLNESS RATHER THAN MEDICAL CARE IS EXPENSIVE

In our first investigations it appeared that the costs of sickness could be about evenly divided between physicians' and surgeons' fees on the one hand, and all other expenses, as hospitalization, nurses, fees, etc., combined, on the other. However, as the studies progressed, the figures showed that the percentage paid to physicians and surgeons rapidly decreased. Thus the National Committee on the Costs of Medical Care has found in Philadelphia, during the boom year of 1928, that only 26 per cent of the cost of illness was paid to the medical profession.

The physicians in metropolitan centers enjoy larger incomes from their practices than do the rural practitioners; yet the 2247 physicians in Detroit who average 57½ hours per week in their practices received net annual incomes of

\$4448, while 701 dentists in the same city working forty-four hours per week, received net annual incomes of \$5393. So it is easy to see that the question of the high cost of sickness does not mean the high fees charged by physicians and that the title chosen by the national committee is a misnomer and should be changed to read: "The Committee on the High Cost of Sickness."

It is the intention of your California Medical Association Committee on Medical Economics to continue its studies of the various plans for the reduction of the cost of sickness that have been submitted to it by the members of the California Medical Association. The California Medical Association is to be congratulated on having so many members who take such a real interest in these important problems.

In passing we may state that the plan submitted by Dr. Walter B. Coffey to have the California Medical Association furnish to all people of moderate income a full service, including hospitalization, if it could be carried through, would be a bold step toward professional control of all the agencies of the healing art.

#### MANY CITIZENS ARE TOO EXTRAVAGANT

In our investigations, we again and again found examples of unwarranted extravagance on the part of many persons, in sickness as in other things. Many citizens frequently insist on expensive service, far beyond their means and wholly unnecessary in the treatment of disease. It is clearly apparent that the physician must make the safeguarding of the patient's financial interests during illness as much a part of his duty as the safeguarding of the patient's physical welfare.

Publicity on this matter of unnecessary costs of illness should be wide and extensive. Even though there is so much unemployment in the nursing profession as at the present time, the committee finds itself nevertheless compelled to urge wide and immediate extension of the group nursing system, whereby frequently one nurse may efficiently care for two patients, instead of two nurses caring for one patient. Such reduction of nursing expenses would go far in reducing the costs of illness.

#### RECHECK ON MODES OF LIVING DESIRABLE

We Americans, as a people, for a number of years, have been the spoiled darlings of prosperity. We have been on a long debauch of extravagance, and it is high time that we began to recover from the sea of dissipation, such homely virtues as thrift, economy and a deeper understanding of our personal obligations, which during our debauch voyage, we threw overboard.

We should not permit ourselves as a people to become so materially rich and prosperous as to be ashamed of our initial poverty or of the sturdy virtues necessarily acquired during that period, and which have had so much to do in bringing about whatever real greatness we may possess.



#### EACH COMMUNITY HAS ITS OWN SPECIAL PROBLEMS

We believe that medical service conditions vary so much in different communities that many of these problems are local in character. Therefore no one plan would be applicable to every community. Hence we urge, as various plans are evolved and completed, that they be carefully tried out in rather small communities, urban and rural, which will serve as experimental laboratories in which the social, economic and scientific experiments can be made.

#### CALIFORNIA MEDICAL ASSOCIATION MUST PROPERLY FINANCE THESE STUDIES

In conclusion: This committee realizing, as it does, the necessity of a study group composed of members of the medical profession in every community of the State of California, wishes to state that with our limited facilities, purely voluntary efforts will be wholly inadequate to prosecute these highly necessary works and studies to a successful conclusion. As none of the members of this committee are candidates for the job we urge that adequate funds be furnished by the California Medical Association to carry on these studies under efficient supervision and in proper fashion.

With sufficient funds and able leadership, the medical profession, with its greater and more intimate knowledge and experience of these problems, should then be able to occupy that commanding position which is so necessary for the protection of the public interest and the advancement of our professional standards.

#### SOME ECONOMIC ASPECTS OF MODERN MEDICINE\*

By DANIEL CROSBY, M. D.  
Oakland

IT would indeed be an act ungracious and unappreciative were the speaker to fail to acknowledge with expressions of gratitude the invitation of the Committee on Medical Economics of the California Medical Association to present a paper for consideration before this general session. Whatever effort he has made properly to prepare for the ordeal must be interpreted as the effort of a man somewhat seasoned in the practice of medicine, to evaluate some of the problems as he sees them and to give expression to his impressions and conclusions, based upon a somewhat extensive investigation and an almost endless perusal of documents.

#### FINDINGS OF THE NATIONAL COMMITTEE ON MEDICAL COSTS

The publications of the National Committee on Medical Costs have been most illuminating and have placed before us the following facts:

1. The cost of being sick is increasing, and is crippling, financially, to the moderate wage earner; and this condition is explained by the

increased cost of hospital erection and maintenance, and the increased scope and expense of clinical investigation.

2. Physicians' and surgeons' fees are only twenty-six to thirty per cent of the whole cost of illness.

3. Forty per cent of all doctors' bills are uncollectible.

4. There is inadequate medical service in all sparsely settled districts.

5. Certain philanthropic organizations are maintaining clinic and hospital service for those of moderate means, as evidenced by the Cornell Clinic and the Baker Memorial Hospital.

In passing, may I emphasize:

(A) The total medical and (or) surgical fee which may be charged for any service at the Baker Memorial Hospital is \$150.

(B) The total obstetrical charge, including hospital and nursing service and obstetrician's fee must not exceed \$100. The obstetrical service is maintained by the Massachusetts General Hospital.

(C) The Julius Rosenwald Fund has underwritten one-half of the Baker Memorial deficit to the amount of \$150,000, with the stipulation that not more than \$75,000 shall be paid within any one year.

6. Certain corporations are maintaining for their employees medical and social service activities, enterprises much to the benefit of the wage earner. We have some interesting examples of this in California.

These are some of the basic facts of costs of being sick and of measures for lessening the burden.

#### RECENT LAY LITERATURE ON MEDICAL COSTS

The reading public is being regaled with magazine and newspaper articles by the score, many times multiplied, showing how exorbitant are medical fees and how destructive is the cost of medical care, and these articles are emphasizing statements that:

1. The medical profession is doing nothing about it.

2. The medical profession is selfishly inactive in modification of the situation.

3. The public must take a hand to correct the "injustice."

Professional philanthropists, altruists and uplifters are pointing at hospitals and accusing them of being in the paradoxical position of posing as Good Samaritans and packing a big stick. The Baker Memorial deficit program is an eloquent answer to the "big stick" premise.

In California one of our leading publicists is pointing to the State Insurance Program in Europe with commendation, telling us and his public that it is not possible that Europe is wrong and we are right. He would have the evidence of acceptance by many countries outbalance the adverse conclusions of Canada and the United States, perhaps not upon the theory that majorities are necessarily correct, but that since so many in Europe are suffering under this incubus, we

\* Read before the fourth general meeting at the sixtieth annual session of the California Medical Association, San Francisco, April 27-30, 1931.

who are offshoots of Europe should accept socialized medicine as a visitation of the sins of the fathers unto the third and the fourth generation.

He would have us believe that the problems of the rank and file of Europe are our problems; that their economic, physical and psychological states parallel ours, and that our solutions should parallel. He does not tell his public in any specific terms of the complications, disaffections and general inadequacy of the European programs.

This man with a mentality so striking that almost nothing could destroy his individuality, accepts the destruction of individual independence for literally millions of people without compunction. He is perhaps permanently removed from any actual contact of his own person with this system in which he finds so much to approve.

#### A FOREST OF CONTRADICTIONS

One of our medical men in San Francisco, who has been writing and speaking much about Europe, is vigorously supporting his views with arguments which, I am sure, he considers conclusive. He will convince more lay audiences than medical ones, but the lay audiences relish information of the locations of bargains in cure and in Medical Utopias. They revel in facts. The relation of facts to idea and ideal they do not stop to consider.

Directors of publicly maintained laboratories and those doctors having a state aid complex tell us the state can do a Wassermann for twelve cents and advocate state laboratories. Some tell us that doctors are resorting too much to laboratories in lieu of clinical investigation and there is a modicum of truth here. Many speeches, eloquent and forceful, are written about irreducible minimum, relation of patient and physician, professional earning capacity, cost of education, constructive coöperative programs, needless utilization of specialists and changing modes in medicine. One leading surgeon tells us that hospitals pamper the patient; a philanthropist tells us that the medical charges are all wrong. A general surgeon of San Francisco complained to the writer of exorbitant fees charged in the more restricted specialties, and altogether we find ourselves lost in a forest of contradiction, unable to see the forest for the trees.

Scattered through the profession are men who think and say that socialized medicine is right and proper and should come, others who say it must be prevented by watchful waiting to prevent adverse legislation, others who say a socialization of hospitals and laboratories is necessary, others, a private insurance program. Somewhere within this tanglement of theories lies an answer.

#### THE LAY PUBLIC IS ASKING QUESTIONS

But out of this welter of half truths given to the public, the quick and illogical conclusions of many speakers and writers, the position of negation to change on the part of the medical profession, people are asking us why we cannot accomplish for our people what many of the forward looking corporations are doing for their

employees, and why we cannot transplant some sort of health insurance program from Europe to America.

Our accusing querists do not take the trouble to go to the personnel offices of the forward looking corporations to see with what painstaking skill their wage earners are picked before they become employees. If this investigation were made, they would soon realize that many programs are possible for picked groups that cannot easily be applied to the rank and file. Furthermore the health insurance crusaders give them no real information, which shows the grievous inadequacy of the existing plans of socialized medicine abroad.

The non-medical philanthropists, uplifters, social service organizations and the medical theorists with socialistic tendencies are hurling the facts of cost at us and telling us that the public has a right to be well, that the medical profession is doing nothing about it and that the state must take a hand.

#### LAWS OF HEALTH AND HYGIENE ARE FLOUTED

They do not emphasize the fact that in all walks of life illness comes because the public, which we earnestly seek to serve and to protect, flouts all laws of health and hygiene. These crusaders would have us ram good health down the throats of all and sundry, irrespective of any coöperation we might have from them. The crusaders choose to disregard the fact that in any private insurance program the sickness report carries the question, "Is there anything in the habits of this patient that has had any influence in bringing on this illness?" "Is any action of this patient responsible for the prolongation of this disability?" Even in the insurance programs of the most reliable insurance companies a definite amount of coöperation is expected and required from the insured.

The multitude of pamphlets on the subject leaves us cold and we find ourselves in the position of Omar Khyham,

"Myself when young did eagerly frequent  
Doctor and Saint and heard much argument  
About it and about, but evermore  
Came out by the same door as in I went."

#### WITH WHOM DOES THE SOLUTION OF THE PROBLEM REST?

The public is misinformed with reference to selfish inactivity. It is not misinformed about the "things as they be" attitude of many of our profession, but greatly are they misled if they think the solution—a constructive solution—rests with them. The solution rests with the medical profession aided by highly trained economists, working in conjunction with them to map out a constructive plan.

The public does not understand our system of medical ethics and they accuse us of being bound, hand and foot, by an antiquated system of rules of conduct which prevents our coöperation and which accounts for our laissez faire attitude. They tell us publicly and with much printer's ink



that we must change our tactics. The public sneers at medical ethics and will not see through our eyes the significance of the rules of conduct of medical practice which have developed through the years.

As a matter of fact, we all know that many of the medical profession are thinking hard about the whole matter, but they are coming always to the same impasse. The facts are admitted: medical fees could be reduced if the unpaid forty per cent could be collected; hospital and laboratory costs are virtually at an irreducible minimum. However, if we do not utilize for our patient every modality available for the diagnosis and treatment of his complaint, we are subject to suit for malpractice, and if we do use them we over-tax the ability of the patient to meet his obligations. It is the old story "damned if you do, and damned if you don't."

#### WHAT IS THE ATTITUDE OF MEMBERS OF THE MEDICAL PROFESSION?

Let us see what the medical profession is really doing. We are all aware that a comparatively few men of the type of the chairman of this section are making serious and earnest investigation of the matter and are seeking to convince the public of their sincerity and of the accuracy of their information. However, when our chairman presented his illuminating and dramatic report before the House of Delegates last year it was received and filed almost without comment. When a member of the Medical Economics Committee of a large county society sought with much effort and with considerable expense to obtain a cross section of the earnings of medical men of his society a great majority of the members sent in carefully executed replies; a few with a pitiful sense of humor sent in replies so ridiculous that the entire effort became useless; a suspicious member or two removed the stamp on the post card to see whether there was any concealed mark of identification which would reveal his income.

#### PRESENT-DAY GROUPING OF THE MEDICAL PROFESSION

The medical profession seems to be divided into four unequal groups:

*Group One.*—A few men—mostly older practitioners—who have been through a baptism of blood in many years of practice and who are now chewing the withered fruit of wisdom, are seeing a real problem confronting the people and the medical profession. Such men, while carrying on the burden of daily responsibilities, are seeking a solution and are issuing warnings both to the lay and medical public. Most of their words seem to be delivered to people who, having ears, hear not.

*Group Two.*—The colleagues of the second group are convinced that the people and everyone who thinks any change necessary are all wrong. Medical service is better than ever; the personal relation of patient to physician must not be disturbed; specialists are not charging big fees; the

public is an extravagant public which buys what it cannot pay for; it is misled by religious cults on the one hand and bone-bouncers and their ilk on the other; it is fleeced by display advertisements in newspapers owned and operated by patriotic citizens in their respective communities which convince the ever gullible sick of the untold values of quacks and nostrums, Chinese herb-alists, and electric contraptions, waters to drink, reducers effective while you eat, and revitalizers of all sorts. These colleagues say medical practice as it stands is just right and should go on unwaveringly through a storm of protests which will subside. (I should like to ask, in passing, whether there is a Better Business Bureau which makes it its business to investigate the truth of advertising that has ever functioned in terms of the tremendous quantity of display advertisements in the press or over the air, given out in the interests of quacks and their wares.)

*Group Three.*—There is another group, and it is a large one, whose members think and say "A change is coming, but it will not be in our time. God help the men who come after us." They are doing nothing and are helping in no way, but are taking the Louis XV attitude of "After us—the deluge." The members of this group are potent agents of destruction of the basic stability of medical practice.

*Group Four.*—The next group is made up of the young, inexperienced men and women just out of their hospital training who have taken the necessary high school course, admitting them to the university, have achieved their basic sciences, accomplished their cultural training and have struggled for grades. They have had science of medicine in the medical school, a little of the art of medicine in the hospitals, and are sent forth into the business of the practice of medicine without one moment of business training—without the slightest conception of the economic side of their relation to their patients and in most instances without any basic training in the actual conduct of an office. Tulane University Medical School is developing a program which is in the process of correcting most of this lack. It has the ardent support of that masterful surgeon and outstanding thinker, Dr. C. Jeff Miller, and is under the active direction of Dean Bass of the Medical School.

There are more than four thousand of these doctors being graduated in the United States each year to enter the practice of medicine for which they are well trained, and the business of conducting a medical practice of which they are entirely ignorant. It is not strange that many of these young men unwittingly invite for themselves and the profession which they honestly desire to adorn, much criticism and misunderstanding. If the Committee on Education of the American Medical Association would undertake to advise the modification of the training of these young men and women so that they could have a proper perspective of their socio-economic relation to their patients and give them some basic training to fit them for the business of the prac-

tice of medicine, perhaps the Association of Medical Colleges would coöperate in the installation of chairs of medical economics which would correct this lack. Certainly many deans recognize the need. It has been the writer's good fortune to be privileged to talk to the students of two great medical schools for two successive years upon the subject, and the avidity with which they received what little he was able to give them would convince the most doubtful, of the students' realization of this important omission in their education. The next five years will mark momentous changes in the business relations of the medical profession to the public and if, in that time, twenty thousand doctors could be trained with a proper perspective of business relations, there would be just twenty thousand additional medical men with increased constructive ability to understand, and assist in formulating new programs.

#### IS IT FAIR TO SHIFT THE BURDEN?

We have listened to our chairman with respect and confidence and affection. He has done yeoman's work for the medical profession of California in this matter. He has sacrificed time, strength and professional emoluments in his consecration to a program of medical betterment. We have an obligation to him which can never be repaid, but let us also acknowledge that we are willing for him to pursue his studies while we pursue the even tenor of our ways. He warns us of what impends.

Do you realize that the medical profession is really in a position of unarmed defense? It is even a crippled defense. It seeks to sit with senses alert to any adverse legislation which may come. A static defense keeps us merely where we are—the subject of attack from all quarters—and the longer this inactivity continues, the better those become armed who are seeking to convince themselves and the world that we are interested witnesses who cannot be trusted.

#### A POSITION OF MILITANT PROGRESSIVENESS IS NECESSARY

The time has arrived when the medical profession of the United States and specifically of California should take a position of militant progressivism in the matter.

We must recognize the fact that some change in the program for the small wage earner must come. He cannot always be bamboozled by the fictitious promises of irresponsible hospital association rackets; and in protest to such rackets some day some legislation which will really lessen the value of medical practice to the public will be enacted, accompanied by much enthusiastic misinformation.

#### AN OLD ENGLISH LAW AND ITS INFLUENCE IN CALIFORNIA

Let us glance at legislation a moment—notably at some legislative enactments based upon previous enactments in England. I refer specifically to the Inebriety Act which was passed in England in 1879. Don't accuse me of going back too

far for my examples because we suffer still from the guidance that that act gave our legislators. That act was full of discrepancies and structural defects that proved well-nigh fatal to the intent of the law. Those defects were all acknowledged and proven by the extensive hearings in England and were reported by the home office.

But legislators are in the business of making laws and they tend to be guided by like laws that have attracted their attention from somewhere off yonder. The same plan incorporated in bills by legislatures in the East was a failure in many states, but with all its defects, it was not so many years ago that it was enacted by our California legislators and stands as a comment upon the intelligence of the California legislative body that enacted it.

For years many of us, I am sure, have guided our patients toward a health insurance program. Those who have accepted our guidance found protection for the breadwinner, at least, from reputable insurance companies. Those who have sought something for nothing have paid their money to one of many of the cheap hospital association rackets and have come to grief in the process.

#### THE LAY HOSPITAL ASSOCIATION RACKETS

However, let us pause for a moment and consider the hospital association racket. We are in the habit of telling people a fact which we know to be true, namely, "three out of every five of our patients would recover whatever is done for them"—so these institutions function on the possible success with sixty per cent of the sick. The tragedies, in many instances avoidable, come in the forty per cent group which remains. These associations have functioned a good many years and probably every man in the room can name some patient who sacrificed life or well-being on one of these altars of false economy and insincerity.

The people, however, can hardly be blamed for believing their pretensions and for accepting them as merciful and not mercenary organizations when they are being told so much about the exorbitant fees of the members of our medical association and of the destructive charges of hospitals.

These something-for-nothing hospital organizations are rapidly increasing. It was the like increase of so-called friendly societies, hospital associations and like institutions that was one of the chief causes of the drastic and sudden introduction of the Panel System in England. Lloyd George, the canny little Welshman, prepared a sop for the English people of small means and rammed it down the throats of the divided and static medical profession of England. Those who point with pride at the achievement in England should go with us to some of their clinics where the clothed abdomen is palpitated by having a patient lean over a chair and where nearly thirty patients an hour pass through the hands of one clinician. If some of our crusading Panel enthusiasts could see this at close hand, they might devote their crusading tendencies to a modifica-



tion of that example before wishing it upon us. Let him note also that in England, where a considerable proportion of maternity cases come within the scope of the act, there is still an increasing death rate from puerperal sepsis.

If he retains his enthusiasm still for the Lloyd George program, let him ask any economist in the world about the Dole in England, or, let him ask any self respecting Englishman about it.

#### THE KRANKENKASSEN EXPERIENCE OF GERMANY

If he still looks to Europe for an inspiration, let him cast his eyes back to the time when Bismarck likewise, as a measure of political expediency, established health insurance in Germany. If his enthusiasm still prevails, let him count the roster of the army of political hirelings in the way of auditors, inspectors, referees, etc., constantly increasing and multiplying ad infinitum in the German health program today.

"In 1926, the supervising commission of 778 *krankenkas* (health insurance centers), with 7,918,412 insured persons, thought it necessary to summon 1,259,016 unemployed patients for a control examination. Of that number, 198,142, or 16 per cent, did not appear, but reported that they had recovered; 219,913 appeared and announced that they could go to work again, and of the remainder 292,133, after the control examination, were declared to be recovered and able to resume their work. Thus, 810,188 patients, or 56.5 per cent, were found to be able to take up their work at once."

#### FRANCE IS VAGUE IN ITS ACCEPTANCE

The following comment upon the situation in France is significant: "The government officials in public praise the system in vague terms and in private admit its futility and danger."

Let the socialized medicine enthusiasts consult the morbidity and mortality rates and compare them with ours and he will, perhaps, realize the truth of what the medical profession is telling him and let him then consult the problem in Switzerland.

#### DENMARK HAS ABOLISHED THE HEALTH INSURANCE SYSTEM

If he then begins to waver, even a little, let him go to Denmark and let him note Denmark's answer to the social insurance propagandists. "Denmark declared that social insurance constitutes one of the most powerful means of depravation ever invented. Denmark abolished the system of health insurance and returned to the status quo ante as infinitely the preferable condition." The socialized medicine enthusiasts do not waste any eloquence upon this subject and, perhaps, this helps us to understand that the border line between some of their eloquence and super-heated air is very narrow.

#### PHYSICIANS SHOULD AVOID BEING PREJUDICED WITNESSES

I repeat, the witness whose interest is at stake is a poor witness for himself, however vociferous

he may be, and when we say that the medical situation is all right, better medical service is now being rendered than ever before, fees are not too large, the hospital charge has reached an irreducible minimum, we need not be surprised when the public receives our information with doubt.

Our attitude must be a dynamic one; not for us to say "everything is all right as it is"; not for us to say "it will come." It is imperative that we declare a broader program necessary. We are able to call into council those who can best advise us, and it is within our power to accomplish a solution.

We have educated the people in public health until they demand as their right the best health measures possible. In that we forced their coöperation but have finally accomplished their complete confidence. Let us make our campaign in this matter one which will cover with confusion the proponents of an English, a French, a German or a Soviet program.

#### HIGHLY TRAINED SPECIALISTS IN INSURANCE METHODS AND PROCEDURES ARE NEEDED

One of this group of medical practitioners would not be called into council on a serious matter of abstract business or of engineering. The consensus of opinion is that cost must be distributed and the logical conclusions look to an insurance program, and an insurance program calls for the services of highly trained specialists in insurance. In the medical economics committees of the larger association groups, specifically in the Economics Committee of the American Medical Association and in that of the California State Medical Association, there should be a highly trained, adequately paid insurance authority who would work with and be the business mentor and guide of the medical economics committee. He should bring his training to the assistance of the committees. They should temper his conclusions and guide him therein only on the medical side. If the medical profession does not give force to a program under trained guidance, some of our legislators will enact a half baked plan to which we will be compelled to kow tow and, as we all know, kow tow, literally translated, means "head bump." Whether we kow tow or not, if a socialized medicine bill becomes a part of our organic law, we and the public, as well, will be bumped in more places than our heads, and medical practice will be modified and will suffer thereby.

#### THE MEDICAL PROFESSION MUST HAVE A PROGRESSIVE PROGRAM

I repeat, the medical profession must be in the forefront of any progressive program. It must not remain firmly standing in static defense, but remaining steadfast to its principles, it must seek not state medicine but private insurance assistance of some sort for the man who wishes to meet his obligations in all things up to the limit of his means.

Casual, or even protracted planned interviews are not enough, a definite program must be evolved with the aid and counsel of the best insur-

ance authorities available, and a sufficient amount of money should be put aside for the adequate remuneration of these insurance consultants.

A plan of this sort could be evolved and could hold fast to the three principles:

1. Medical care must be personal to be effective.
2. Medical service must be organized to be either effective or economical.
3. The financial burden of sickness must be distributed if people are to escape charity or neglect.

#### PUBLIC RELATIONS ACTIVITIES ARE NEEDED

Our president, Dr. Kinney, who has so unselfishly sacrificed his time and energy to the honor of this organization has called to your attention that a public relations committee is necessary now and hereafter. He is aware that the great corporate business bodies must maintain such committees. Our California Medical Association should maintain a group made up of far-seeing lay and medical men who would constitute its Medical Economics Committee, who would seek to evolve a program and who, by all means available, would transmit to the public all requisite information in the premises.

Insurance is not per se a philanthropic game, but private health insurance, written by people able to fulfill the requirements of their agreement will constitute one of the greatest philanthropies of the age, and the people should be led to this by that profession which is at this moment offering them more protection than any other profession on earth.

Again let me emphasize: a fact is as inanimate as a stone until it is coupled with an idea and joined with an ideal. It is the conjuncture of the fact which we know, the idea which must be conceived and the ideal which is the living, breathing basis of the practice of medicine that is necessary to evolve a constructive solution. We must convince the public that we accept the fact of cost and that we are seeking a plan—that we are seeking the idea which will bring our ideal to fruition.

#### CONCLUSIONS

1. We must convince organized medicine of the facts of cost of illness and their significance.
2. We must convince the public that the people are getting only part of the truth in suggested modification programs.
3. We must seek from medical schools and from the Council of Medical Education of the American Medical Association a revision of the curricula which will broaden the training of medical students to meet changing conditions.
4. We must have a better liaison with the public.
5. We must call into council trained insurance authorities.
6. Holding fast to the ideals of scientific medicine, we must take a position of militant progressivism to meet the changing conditions of our modern age.

3115 Webster Street.

## IS SOCIALIZATION INIMICAL TO AMERICAN MEDICINE?\*

By REXWALD BROWN, M. D.  
Santa Barbara

MEDICINE arose out of the primal sympathy of man with man; out of the desire to help those in sorrow, need and distress. This splendid conception of medicine was penned by the immortal William Osler.

Has medicine measured up in full to such spiritual status or has it in the course of centuries become integral with the international competitive system wherein each individual's welfare is of paramount importance regardless of or indifferent to the welfare of the neighbor? Is it not true that though the primal sympathy still has a high place in a physician's life, the expression thereof is largely a matter of individual relationship between one patient and one doctor?

#### MODERN ERA PRESENTS A COÖPERATIVE-COMPETITIVE COMPLEX

A new attitude of mind is emergent in civilization. It is recognition, born of scientific studies, that there is in nature not alone the competitive principle but also the coöperative. They exist side by side.

The competitive principle held sway in all life until an age when man had evolved to become a conscious individual. Then a softening purpose was breathed into the harshness of existence. Consciousness expressed itself in altering and modifying the competitive system, as expressed in the individual struggle for life. Unselfishness, philanthropy and altruism appeared as active factors in a changing world. The method to real happiness, the one goal to which all aspire, became evident.

Efforts to correct the stupid, disorderly and wasteful evils of the continuance of the competitive system are apparent to all. They are nowhere better manifested than in the industrial, commercial and business spheres where the competitive activities have always been at fever heat. Trusts, combinations, mergers, monopolies and trade unions demonstrate the replacement by collectivism of the fierce enslavement of individuals to the false idea that happiness and security are possible only through destructiveness of a fellow being.

#### COÖPERATIVE SPIRIT IS AT WORK

The coöperative spirit is at work, a leaven in society's advance. It is not contended that the injustices of the past centuries are obliterated. There is, though, a lifting of some of the weight from the harassed, the oppressed, the unfortunate and the unhappy—victims of the biologically unequal struggle.

The coöperative movements exist on different levels in different nations. They are variously

\* Read before the fourth general meeting at the sixtieth annual session of the California Medical Association, San Francisco, April 27-30, 1931.



designated, condemned or approved according to the intellectual cultures of the citizens. In England one hears of Socialism, in Russia of Communism, in India of Gandhism and in America of Social Mindedness. The coöperative attitude is recognition that no individual exists apart from society. "I" implies the existence of "You." If not, neither word has any meaning.

To what extent has American medicine identified itself with the coöperative psychology or urge as exhibited in all parts of the world? Hardly at all. Physicians do help individuals in sorrow, need and distress, but they have found no way to spread their unselfish efforts over all humanity. This is a condition for which the profession has no reason to be proud.

The so-called organized American medical mind blindly refuses to be cognizant that medical socialization in various forms has for considerable time been under way. The lay mind more than the medical has been the leader in accepting such medical socialization concepts. Lay leadership is the result of the maladjustment of medicine to an enlightened civilization.

#### PREVENTIVE AND CURATIVE MEDICINES ARE NOT ANTAGONISTIC

The maladjustment is seen by the public in the disbalancement between preventive and curative medicine. The public is conversant with the inadequacy of personnel and financial support in official health agencies. It senses the lack of constructive interest in preventive medicine on the part of many practitioners of curative medicine. The public knows there is faulty distribution of physicians, hospitals, dispensaries, nurses and dentists in the United States. The public believes that many of its members, other than the wealthy and the indigent, do not have the benefits of modern medical knowledge. The inbetweens, the great mass of respectable and hard working citizens, complain that much of modern medical attention is out of the reach of their pocketbooks.

#### LAY ATTEMPTS TO REMEDY MEDICO-SOCIAL STRUCTURE

Nonprofessional society has attempted to correct these glaring faults in the medical social structure. Cities, counties and states are increasingly active in providing medical services to part or all of their citizens regardless of economic ratings. Schools and universities at minimum costs provide preventive and curative attention for their students. The state furnishes hospitalization for patients ill with mental aberrations, tuberculosis and bone and joint disabilities. Social service agencies, both public and private, have established preventive and curative clinics. A large amount of good can be properly accredited to health conservation leagues, community health associations, visiting nurse associations and health centers. They afford much trustworthy information especially on maternal, infant and venereal matters. The scientific service is not prohibitive in cost.

Significant in the growing movement of socialization of medicine is the operation of complete

medical and surgical departments by industrial plants and railroads. The insurance minded public has powerfully developed the social medicine idea. Many life insurance companies require their policy holders to submit to medical re-examinations. The companies are also active in demanding public health protection and in educating their members on health matters. Almost every state in the union has adopted compulsory workmen's compensation laws, the risk being carried by insurance. Medical service is interwoven in the laws. There are sporadic but numerous efforts to introduce sickness insurance in the United States particularly through fraternal orders and trade unions among wage earners.

Is not this marked activity among lay people convincing evidence that the public desires a higher degree of health than it now has? Are the movements not sufficiently indicative of the public's impatience with the inefficiency of the medical profession in achieving their desires?

Is the medical mind bereft of the comprehension that a large measure of social medicine is already in our midst? Have the medical eye and ear faculties atrophied to the extent that there is no perception of the almost complete failure of real medical organization in the United States?

The coöperative understanding is on the threshold of dominance in the life of man. It will not supersede the competitive principle. It will operate jointly with it. The levels from which the competitive principle will function are raised. On such levels will be found wider sharing in fundamental necessities for adequate and happy living.

The science of medicine has vast reservoirs of knowledge which should be available not only to physicians as sources of income but to all people for the maintenance of health. The knowledge should be humanized—made helpful to humanity in need. There can be no satisfying progress without health. Health of body and of mind underlies all human activity.

#### THE OBLIGATION OF ORGANIZED MEDICINE

The promotion of health to all is the responsibility and obligation of medicine. No other body of citizens can function adequately to this end. It is not true that the personnel of medicine is inferior in social mindedness to the lay mind. It cannot, however, be supported that there has been developed group consciousness toward organization to meet the responsibility and obligation. There has been no definite facing of the problem outlined in 1924 by Dr. Olin West, secretary of the American Medical Association, "The one great outstanding problem before the medical profession is that involved in the delivery of adequate scientific medical service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life."

To the understanding of and attempts to solve this problem must major efforts of the medical profession be consecrated. The challenge from a thinking social structure is one worthy of the intellectual resources of physicians. The general



and specific backgrounds of education place physicians on a plane as high or higher than that of lay persons in the comprehension of the worth of concepts which guide human endeavor. The challenge will be accepted first, because medicine has not forgotten its origins in the expression of sympathy, and second, because under existing competitive attitudes of mind the existence of scientific medicine is at stake.

#### THE AMERICAN MEDICAL ASSOCIATION BUREAU OF MEDICAL ECONOMICS

The foundation of the organization plan was laid by the American Medical Association at its annual meeting last year on recommendations carried to the House of Delegates by representatives of the California Medical Association. A medical economics bureau was established. The bureau should be a body continuously in session if it is to formulate programs meriting approval of American physicians. The bureau must be adequately financed, otherwise physicians of statesmanlike calibre could not afford to be its personnel and function as an unprejudiced advisory committee.

At this juncture I suggest that the Committee of Medical Economics of the California Medical Association be composed of experienced physicians of judicial temperaments, interested in general problems of medicine rather than in personal problems of practice. I further suggest that the members of such committee be paid satisfactory compensation for all time service consisting of surveys and data on which recommendations to California physicians may be made. I also suggest that the money for this purpose be secured from the treasury of the Association. By furtherance of such procedure California would take the lead among the states of the nation in the investigation of how to improve the health and happiness of all the people.

#### MEDICAL PROFESSION LACKS ORGANIZATION

My purpose in this paper is to reiterate what I tried to convey in my paper, "The Business of Medicine," read before you last year. The emphasis was on lack of organization in the medical profession. Scientific medicine would be better understood and appreciated by the world if it displayed qualities of organization, direction and foresight. There is little safe leadership, that is, "management," in the affairs of medicine. Medical organization today is not far removed from chaos. I wonder if the lay public is entering into medical fields because those physicians who guide our national and state associations are interested largely in maintaining the status quo. Are our medical spokesmen broadminded and plastic to new conceptions or are they fettered by tradition?

The work of the economics committee of the California Medical Association would not exclude studies of social medicine, state medicine, health insurance or whatever the coöperative idea in medicine might be called. Why do many physicians oppose coöperative measures between phy-

sicians and all those who need their attention? It is due almost entirely to little understanding of what is meant by the proposals.

#### WHY SHOULD SOCIALIZATION OF MEDICINE BE FEARED?

The objections to some form of socialization of medicine are largely the products of fear. The fear is of crippling the work of scientific medicine. The arguments against socialization rarely touch on the value of the proposals to the public. The thousand and one phases of American life in which coöperative measures have been found essential to stabilization and security are ignored in the discussions. No thought is expended on the possibility of formulating a plan by which American medicine could add a new chapter to American institutions. The chapter would be constructively social, that is, in the interests of all.

Physicians of the United States have an indifferent appreciation of the increasing momentum of socialized medicine in most of the countries of the world. Whenever the topic reaches the conversational threshold, it is often tossed aside with the comment that conditions are different outside the United States, or with the remark that social medicine worked badly in England and is opposed by the British Medical Association. How little has filtered into the consciousness of American doctors that the great British Medical Association, after twenty years of study of the subject "The Health of the People," has in the last year made a proposal to the English public. The proposal is a comprehensive one intended to be satisfactory both to the recipients and givers of a medical service. The essence of the proposal is that the medical benefits of the present National Health Insurance Acts be extended to include dependents of all insured persons. The plan includes prevention as well as relief of disease. An open-minded doctor in this country should read English medical journals rather than American to get the facts about British medical opinions.

#### INITIATIVE IN MEDICINE WILL NOT BE ANNIHILATED

Among indictments of the socialization of medicine is the charge that initiative will be annihilated, that research medicine will cease and physicians will become mechanical. Is the indictment weak or strong?

There are three economic levels which roughly determine the kind of professional care patients receive. The wealthy class pay whatever the doctor charges. In this class people can exact anything that medicine has to offer. The indigent are given excellent attention and the cost is met indirectly by other taxpaying citizens. Those poor and in moderate circumstances, the bulk of the population, receive good, bad or indifferent attention from the medical profession dependent on their ability to meet the costs of limited or all services in which fixed charges, as x-ray or metabolic determinations, are economically basic in nature.



## A MEDICAL INSURANCE PLAN PROPOSED

The medical insurance plan is one of fixing an economic level. At or below the level, an annual income of blank dollars, all people will receive the manifold blessings which have been brought into the world by medical discovery. The cost would be borne by recipients, by employers and by the state on a basis fair to all concerned. From a common denominator level the initiative urge would find no barriers to its progress.

The well-to-do should not be permitted to take advantage of a health insurance system. Those on an economic level above the established one would pay for their medical services as they do now. Many doctors would be satisfied to receive their compensation from the insurance fund, others partly from the fund, while others would confine their practices to the wealthy. The competitive system would commence operations from the established coöperative level. There would be no deterioration in medicine.

An opportunity to use initiative is constantly held before physicians and they turn away. Unless the demand of people for better health is recognized and met, there is much reason to believe that the medical profession will be incorporated in some type of social medicine controlled by lay personnel. This would very likely be a public catastrophe, tending to throw the race backward.

Is it difficult to understand that health insurance is but enlargement of the industrial accident compensation insurance laws which are in effect throughout the United States? Certainly older physicians in our state association remember the obstinate opposition when industrial accident compensation insurance was broached. Nowadays the medical profession has accepted its position in the accident insurance program as very satisfactory from both the professional and economic standpoints, the original points of difference having been studied, modified and then accepted.

## SOCIAL MEDICINE A MIXTURE OF IDEALISM AND COMMERCIALISM

A friend recently told me that the field of medicine should be ever idealistic and there should be little contact with the field of commercialism. Though the two fields are far apart, in each one blossom many of the same flowers whose pollens unite. In commercial pursuits there is not a complete dearth of idealism, though the main objective is the making of money. In medicine there can be no service unless physicians receive compensation for their labors on the basis of just economic principles. The objective of physicians is not the making of money but the deliverance of health. Social medicine is the fruit of the uniting of the pollens of idealism and commercialism.

## THE FAMILY DOCTOR—AN EXPRESSION OF IDEALISM

The highest expression of idealism in medicine has been the old family doctor. The economic

status of the old family doctor was not good. His earnings in general were low—not commensurate with his worth in the body politic. He was a slave to his clientele. They extolled his idealism and his disregard of commercialism, but extended him little money to meet the ordinary requirements of living. The education of his children was largely curtailed and often he was deprived of the means to enable him by association with his fellows, by travel and by perusal of recent books and journals, to keep abreast of the advances in his profession. Little time was allotted him for rest and recreation by which to refresh body and soul.

Social medicine will bring the family doctor idea to the fore again. The worth of the family doctor has been somewhat clouded by the modern specialist movement. The family doctor will be transformed into the general practitioner, the master consultant, the trusted counselor, guide and friend. He will be the backbone of the institution of social medicine. To a large extent he will be the director of specialists who will be his hands in carrying out the many difficult, intricate and special diagnostic and therapeutic procedures which no one physician is capable of achieving. The specialist will be inculcated with the general practitioner attitude of mind and will refer those patients outside his sphere to those capable of giving adequate service. Thought of and desire for fees will be eliminated. There will be no antagonisms and the general practitioner and the specialist will be broadened by associative contact.

## SOCIAL MEDICINE EXISTS AND IS HERE

American medicine has partly swung into the coöperative spirit of the age. Witness to this statement is the increasing number of group practice clinics which are being established in many of the states. The most successful of these are the ones builded about one or more general practitioners. Group practices will be best prepared to fit without marked adjustment into the institution of social medicine.

Social medicine becomes insistent on inclusion among the institutions of man. Its growth, its humanization, is a problem largely for medical direction and guidance. The medical profession is without question the most important factor in the whole program. Without the knowledge and applied service of properly educated physicians, social medicine will be a dismal debacle. The future of high minded medicine is in the channel of wisely organized coöperative endeavor. American physicians must build an essentially American plan of social medicine which will be free from proven defects in other countries.

As the coöperative movement gains momentum and reaches a more advanced level there may be found a solution to another problem about which earnest socially minded doctors are much concerned. The problem is the failure of large numbers of medical graduates to be conversant with the constantly mounting medical knowledge. Medicine's inadequacy, medicine's failure to register with large sections of the public lies in the

field of lazy indifference. Cultisms flourish in this field. Lack of real medical organization spells success for the opposition to basic science laws and encourages the continuance of the incompetent doctor in society.

#### THE COMPETENCY OF THE LICENSED PRACTITIONER

When physicians are satisfactorily compensated there will be found necessity to meet squarely the problem which has not been faced with courage. The problem, one on which the socialization of medicine must be continuously dependent, is the competency of the licensed practitioner. In this age, under the many diverging laws enacted in different states of the Union, the competency of physicians cannot be assured to the people. Every legal license to practice the healing art should be full evidence of worth and ability and security to the public in matters of sickness and health.

Social medicine should be a real contribution to social justice. In the present cycle of human thought it can be the culmination of physicians' efforts to express sympathy to those in sorrow, in need and in sickness. Full throated acceptance and announcement that the main purpose of scientific medicine is health for all, those now living and those as yet unborn, will change the course of human thought and action.

1421 State Street.

#### MEDICAL ECONOMICS—PRESENT ACTIVITIES\*

WITH SUGGESTIONS ON PROPOSED CHANGES

By J. ROLLIN FRENCH, M. D.  
*Los Angeles*

THE year 1931 has crystallized many smoldering economic problems in all walks of life, including that of the profession of medicine and surgery. In considering the problems of medical economics pertaining to the application of the art of practice today, we must visualize the situation and accept the new world as it now is and act according to the modern trend, instead of allowing tradition entirely to direct our activities. We must base our future policies on reason and act with vigor, dispatch, and common sense.

The basic thought in medical economics was admirably expressed by Dr. Olin West, secretary of the American Medical Association, a few years ago when he said, "The outstanding problem of the medical profession today is how may we convey adequate scientific service to all people, rich and poor, at a cost which can be met by them in their respective stations of life?"

#### WHAT CITIZEN GROUPS CAN PAY

It has been truthfully stated that only about 15 per cent of the population of the United States

are financially able to secure proper medical attention regardless of cost. Another 15 per cent are represented in the charity group, who are amply cared for, as far as scientific medical and surgical service is concerned, by the many well organized charitable hospitals, including city, county, and state institutions. The modest incomes, in many instances, of the remaining 70 per cent—the middle class—will not permit them to pay the costs necessarily attached to the present system of dispensing scientific medical care. As a result many are attracted by the glowing promises of unscientific cults and commercial quackery.

Little can be accomplished by attempting to legislate against this evil unless an educational campaign is instituted, molding the present ideas of the public.

The solution of the problem has attracted the attention of the public at large, principally because organized medicine has given but little or no consideration to the remedy for this timely subject.

The present activity in medical economics is not an attempt to revolutionize the science of medicine. It is an attempt, however, to force constructive consideration of evolution in the application of the art of practice, with the idea of overcoming "fogyism," which latter condition constitutes an unnecessary barrier to modern medical progress.

In discussing this problem our proposals for relief and amends are not put forward as specific plans for a magic cure. It is hoped, however, that the suggestions may in time receive sufficient support to be of service in an educational campaign which will benefit both the profession and the public. Moralizing, browbeating, rate-cutting, contracting, or any other one specific plan do not furnish a solution of the problems. The remedies do not come in pill form or in bottles. Before we make an attempt to form conclusions for relief or amends, modern ideas as well as traditions and history must be studied carefully from all angles, with a thought of justice to all.

#### THE BEGINNINGS OF MEDICAL ECONOMICS

The more or less intricate ramifications of this subject may be clarified by a brief review of the history which led up to the present trend. With the exception of the Oath of Hippocrates in about 500 B. C., there was nothing of importance in medical economics until the founding of the Royal College of Physicians in the fifteenth century. Prior to that date the healing art was considered largely the function of the clergy, surgery being the work of the layman and usually the side occupation of the barber.

Early hospital organizations were founded by religious groups who made the care of the sick a means of fulfilling religious vows. Thus was developed the tendency on the part of many of the people to expect medical care as a charitable service, a contention which has been more or less propagated ever since. The Royal College of Physicians at this time had no monopoly on the

\* Read before the Industrial Medicine and Surgery Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.



healing art. The society of apothecaries was a strong rival until the seventeenth century. The seller of drugs prescribed and the physician mixed his own compounds. This competition developed the first evidence of cut rates for professional services. Immediately following the founding of the Royal College of Surgeons in 1810, some three hundred years after the founding of the Royal College of Physicians, the government began to give consideration to the subject of sanitation and public health. It was not, however, until it became apparent to even the dullest witted among the ruling class that the rich could not escape the contamination by disease propagated among the poor that more adequate provision was made for the extension of medical care to this class.

Just one hundred years ago, in 1831, the labor unions of England, even though they were not permitted to enter into collective bartering with employers on other matters, were allowed to enter into an agreement for wage deduction to provide medical care. This is the first intimation we have of contract medical practice. Those not employed or not having sufficient funds to pay their monthly medical dues were compelled to apply to the local poor authorities for medical services. Thus the beginning of the division of the middle social class into the upper and lower strata.

#### SOME RECENT EXPERIMENTS IN STATE MEDICINE

As time went on many new problems were presented, but it was not until 1895 that the British Medical Association, after investigation, reported that, while there were many aspects of contract medical practice to be condemned, they could offer no better substitute.

In 1907 the voice of the people commenced to make itself heard in unmistakable language, and the passage of the National Health Insurance Act in 1911 became inevitable. Thus in a measure the medical profession of Great Britain became subservient to lay supervision under political domination. Similar action will come in the United States unless the medical profession heeds the warning and develops better business and political technique through an active department of public relations for the promotion of a satisfactory system of service adaptable to the respective interests.

As early as 1900, European experiments in state medicine and compensation insurance began to receive public consideration in America. Soon after, action was manifest by the passing of the first compensation law. In 1913 California passed its compensation law. A few years later, what might be virtually termed a form of state medicine—a workmen's health insurance act—was proposed and placed on the California ballot. The measure was defeated, but cherished memories represented a smoldering fire. Similar memories throughout the nation have since been fanned by the demand of public sentiment for a change in the system of marketing medical service to the middle class.

#### AN ANALYSIS OF RECENT ACTIVITIES

In an effort to meet this demand there have developed various agencies of activity which have resolved themselves into four general classifications, namely:

1. Activities of organized medicine which, save for a few exceptions, have been ineffectual.

2. Activities of the general public, which may be subdivided into:

- (a) Activities supported by philanthropists with good intent, but proposing methods of questionable application due to lack of knowledge of scientific principles.

- (b) Activities of laymen with selfish interests and ulterior motives, with no respect for the application of medical ethics.

3. Activities of physicians and surgeons as individuals or groups. This class of effort may be subdivided similarly to that of the lay groups with the exception that there is evidence in numerous locations of constructive programs, scientific and businesslike in character, operated with good intent and results.

4. Activities of the Costs of Medical Care Committee at Washington. In 1927, allied interests, recognizing that medical economics was approaching a state of chaos, organized a committee, afterward called the Committee on the Costs of Medical Care. This committee received semiofficial recognition of the medical profession, interested scientific organizations and the government. It was made up of approximately fifty members, representing five distinct groups, namely: private practitioners, public health service, institutions with special interests, social sciences, and the public at large. Private interests and foundations have largely volunteered the necessary financial support, amounting to about one million dollars, for carrying on this survey in medical economics.

Realizing the magnitude of the problem, the committee estimated that five years would be necessary to reasonably complete the study. The object of its activity was to survey the economic aspects of the prevention and care of illness, including the adequacy, availability, and compensation of the persons and agencies concerned.

The committee has no idea of making suggestions which would in any way tend to commercialize medicine or lower scientific standards. The various surveys are purely for the purpose of accumulating facts and figures pertaining to medical service as it is now being rendered to the respective social classes. This statistical information, the committee hopes, will materially assist the medical profession in arriving at practical conclusions with respect to desirable changes in procedure.

For want of better understanding of this committee's work, many of the medical profession do not fully appreciate the value of this effort.

Illustrations of the other national activities of organized medicine are those of the medical as-

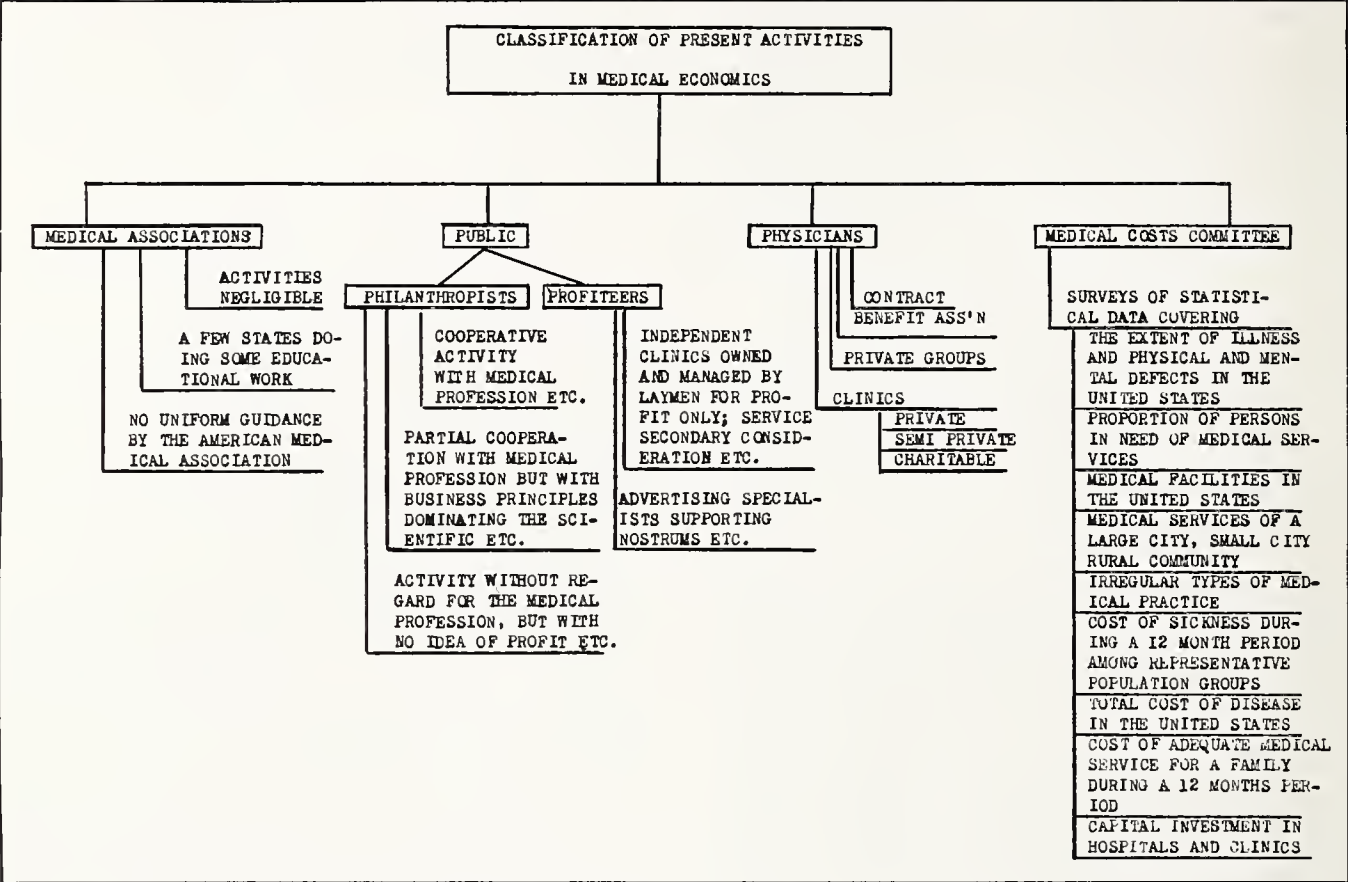


Chart 1.—Some major factors in medico-economic problems.

sociations of the states of New York and Minnesota. They have tried to educate the public by a constructive program of newspaper articles, radio talks, et cetera.

The activities of the general public may be illustrated in the parental rôle of some employers. The Johnson-Endicott survey of fifteen thousand employees furnishes statistical data showing that the costs of full medical care to the potential patient are \$21.80 per year. This expense was carried by the employer with no wage deduction from the employee.

Some philanthropists, at first contributing liberally to hospitals and scientific research under medical supervision, have since assumed the parental attitude and are attempting, with good intent, to inject their business judgment into the art of medical practice. Many lessons may be learned by the medical profession from such activities.

Activities of the layman with selfish interests are illustrated in some of the many organized-for-profit hospital associations which are springing up everywhere.

An illustration of the individual benevolent activity is the Cooperstown experiment. The Bassett Hospital Guild of Cooperstown, New York, started an experiment on January 1 of this year. They charge \$25 per person or \$100 per family per year as a fixed charge for full medical coverage. It is their idea to render complete scientific service as economically as possible, an individual guaranteeing the loss, if any, during the period of the experiment.

There are some so-called "nonprofit" organizations and hospitals rendering full medical ser-

vice. It is the opinion of many, however, that some of these institutions are using this intriguing idea merely as a camouflage to solicit public contributions for personal gain.

There are many irregular practitioners representing the various cults and laymen camouflaging as physiotherapists who are organizing clinics of physical service and soliciting patronage through newspaper advertising and radio talks. It is really surprising to learn that many seemingly intelligent people wear curative metallic rings, foster superstitions and fall for other quackery. Much of this tendency could be overcome by a constructive educational campaign under organized medical leadership.

Industry is beginning to recognize the value of better medical service to its employees. One employer said, "We are not rendering medical service to our employees because of paternalism. It has been proven beyond a reasonable doubt that full health service to employees is good business and productive of financial returns to industry, to say nothing of the advantages to the employee and his family."

Industry's greatest complaint is that doctors are not available who are properly trained to cope with industrial medical problems. This, of course, cannot be remedied noticeably until our medical schools recognize the importance of this virgin field for future usefulness of the physician and add a department for training students in medical insurance and commercial economics.

Insurance companies are not overlooking the possibilities of future forced health insurance. As yet, however, there has been no definite action on their part. The Metropolitan Life Insurance



Company offers some very interesting data which has been accumulated on the subject of medical costs. The work of this company in medical education of the public is to be commended.

The activities of physicians and surgeons as groups are well represented in the approximately one hundred and fifty private group clinics in the United States. The majority of these group clinics are located in the Middle West. With the exception of an outstanding few, the clinics are supported largely upon the merits of their services in competition with other physicians.

In passing I cannot help but mention that there are many detrimental influences to public health as well as to physicians' interests being manifest by the twenty-eight various isms, cults, paths, and religions, to say nothing of the dozens of commercial organizations which are virtually practicing some form of the healing art in California today. For want of properly applied organized opposition, supported and financed by the medical profession, many of these irregular practitioners have become inrooted with the sanction of state, which is a semiofficial recognition of the popular idea that organized medicine is a great American medical trust, having for its object the physicians' interests at the expense of the public.

#### THE INFLUENCE OF THE PUBLIC PRESS

The public press, lacking professional guidance, has been intrigued by the sentiment of lay and cultist organizations, including a few misguided members of the profession, and have taken advantage of this popular idea to make the medical profession and the hospitals defendants in a newspaper trial with the public as the plaintiff. Clever promoters and advertisers have spent millions in assisting the prosecution to stimulate the sympathy of the public, who also served as jurors.

Soon after the beginning of this trial of the so-called "Great American Medical Trust" on the charge of high cost of medical care, lack of coöperative organization prompted a split between the defendants. Instead of going to the bat, joining forces and coöperating, each defendant attempted to shift the liability to the other, thus practically stipulating that there was truth in the allegation, but leaving the issue to the jury to decide whether it was individual liability on the part of the hospital or the medical profession, or whether it was a joint liability. The hospitals challenged the doctor, and vice versa, in defense of this public allegation. Neither presented constructive thoughts; hence the public has decided in favor of the plaintiff.

In California we now have documentary evidence as to how a straw vote of the jurors was expressed. The favorable state-wide referendum establishing a chiropractic board a few years ago was our first intimation of the antagonistic attitude of the public. The 1930 state election on the subject of eliminating taxation for nonprofit hospitals again expressed the public's antagonistic attitude toward the ideals of organized medicine. Over a million votes were cast, two to one for taxation. This must be interpreted either as rep-

resenting the public's antagonism toward organized medicine or as pure ignorance of the public on matters pertaining to medical economics. It matters not, but it does clearly illustrate the necessity for a constructive educational campaign under medical leadership.

Activities in medical economics have developed a national problem for the medical profession which cannot be ignored if future usefulness and dignity of the profession as an organization are to be fully preserved. Thus far, organized medicine has been on the defensive, with no coöperative defense. The majority has rendered its verdict in favor of the plaintiff public, hence directly jeopardizing the interests of the profession and indirectly mortgaging the public health of the future.

#### THE RÔLE OF MEDICAL ORGANIZATIONS

Is the medical society going to let tradition supersede modern business intelligence? Are physicians going to sleep on their rights and allow the statute of limitations to apply, thus denying the profession the right of appeal, or will they arise to the occasion and organize for an effectual offensive educational campaign? A large army of potential professional soldiers of doctors, nurses, hospitals, and allied professions only await training and leadership for constructive action.

Some may have the audacity to say that the medical associations have endeavored to carry out this thought. If they have, their efforts, with few exceptions, have been amateurish and the light of practical significance has been so buried under the bushel of tradition that the results thus far are negligible.

The dissemination to the public of information about things medical and of business art to the profession can no longer be left entirely to the discretion and efforts of an untrained, part-time, underpaid medical committee. Stop for a moment to consider the cash capital invested in or represented by the members of the State Medical Society. Figure the cost of medical education, office equipment, libraries, automobiles, and homes, to say nothing of the many other assets. Conservatively speaking, the cash invested in this state alone represents more than one hundred million dollars. Compare the limited protection and business forethought given by the medical profession to this tremendous investment with the business technique that is being applied to similar investment by a progressive business corporation. Reversing the comparison, the medical profession would say that the corporation was using peanut oil in an attempt to cure appendicitis. Medical science scoffs at the layman's use of nostrums and unscientific principles in the treatment of human ills. Yet the professional man has failed to recognize that the real business technique utilized in the average medical circle reflects practically the same picture in the business mirror.

#### PRELIMINARY STUDY IS NECESSARY

Before these problems in medical economics are earnestly approached by the medical profession,

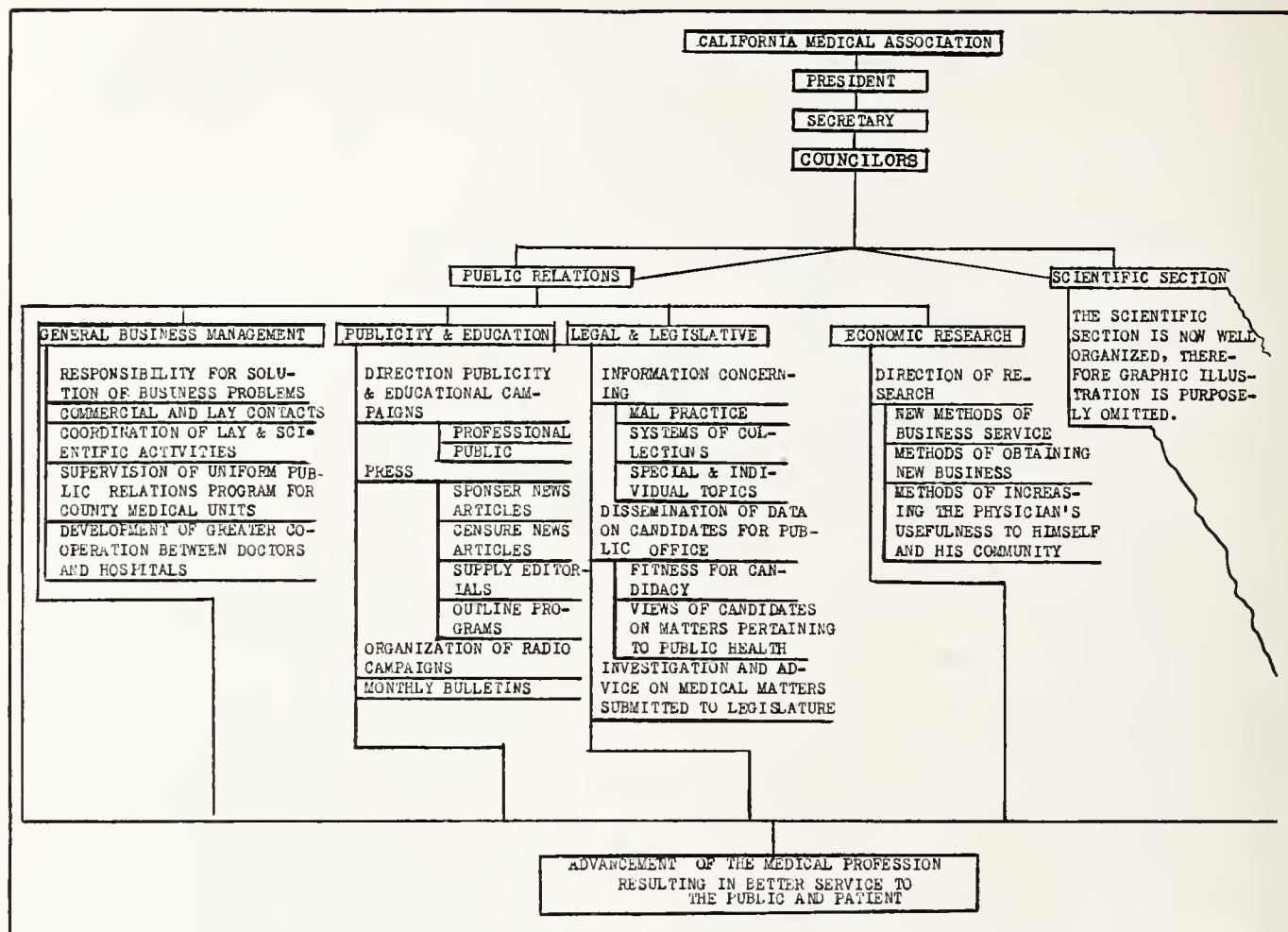


Chart 2.—An analysis of activities as applied to the California Medical Association.

preliminary scientific thought and business consideration must definitely outline the approach to a well-defined campaign for the procedure, incorporating only the basic business fundamentals, leaving the specific plans to be molded by early experiences and circumstances.

The success of any system of scientific service depends largely upon the ability to educate the doctors to the importance of supporting a well organized department of public relations in the medical associations. If this can be done, then medical leadership in matters pertaining to the health of the public is but a question of time. It is now time, so to speak, not only to continue our interest in the evolution of the science of medicine, but also to give whole-hearted consideration to the necessary readjustments in the art of practice.

#### NEED OF SELF-CHECKING

One of the first things to do may be nicely illustrated by the story of the colored boy, who recognized the value of modern business ideas and applied psychology. He went into a corner drug store and asked the proprietor if he could use the telephone. With an affirmative reply, he called Broadway 1234. Following the proper connection he said, "Mr. Jones, do you want a colored boy to work around your place and help you with the housework, gardens, automobiles, etc.?" Apparently the reply was negative, because the boy then said, "You say you don't? You say you have a colored boy working for you now? Well, Mr. Jones, is that boy you got now per-

fectly satisfactory? You say he is? All right, then, Mr. Jones. Good-by." As the colored boy hung up the receiver, the druggist, who had overheard the conversation, said, "Say, boy, I want a boy to work around the store." In reply the boy said, "Mr., I don't want no other job. I'm the boy that is working for Mr. Jones. I was just checking up on myself."

From the present trend of public sentiment, it is apparent that the medical profession has neglected to check up on itself, thus necessitating the public giving notice of dissatisfaction, which if not properly heeded by the profession, will result in more drastic action. The old saying, "We will either have to fish or cut bait" well expresses the present economic relationship between the medical profession and the public. In other words, if the medical associations do not develop leadership in health measures, they must be content to be followers and take the consequences. Aloof, dogmatic ideas can only broaden the gap of economic service in a democracy. An attitude of professional jealousy and revenge is the most expensive luxury known and accomplishes but little. On the other hand, the fight for medical leadership of public opinion is worth while. A democracy cannot be driven; it must be led.

#### SHALL PHYSICIANS OR LAYMEN BE THE GUIDES

Who are to be the leaders in the future program for the health of the public? The medical profession or the laymen? If it is to be the medi-



cal profession, we must change some of the aristocratic ideas sponsored by tradition and train our forces to exercise greater tolerance and develop better coöperation and technique in modern business procedure. The question immediately arises, "What should be done?" To answer this question in detail would require pages of manuscript. However, I trust a few suggestive thoughts will serve as an illustration in assisting the imagination to outline a procedure for practical amends.

#### ADAPTATION TO MODERN ENVIRONMENTS

Following an early check-up on ourselves, we should so mold medical traditions as to permit slight changes in the interpretation of our code of ethics, thus propagating more flexible relations with the commercial world. Remove the fear that has been impregnated in the doctor's mind that public leadership is unethical. Encourage public contacts. Tell the doctor what to do instead of what not to do. Make public relations a business instead of a side line. This will stimulate the desire of the physician to improve his standard of service instead of discouraging him in his efforts to practice.

Tell the public in a dignified manner what good service is and what it means, and how and where it may be obtained instead of allowing unscientific propaganda to mold the public mind into such a shape that it will not fit the hat of reason.

How can all these and other constructive programs be propagated? It would not be difficult if the medical profession would utilize scientific basic principles of business which have been successfully demonstrated in propagating similar ideas in business. Why not, then, organize a department of public relations in the California Medical Association under the leadership of a well qualified, aggressive business manager who understands the psychology of the art of practice, whose business it would be to train assistants and develop a department to actively promote and protect the interests of the Association and its members.

#### NEED OF PUBLIC RELATIONS DEPARTMENT IN ORGANIZED MEDICINE

Briefly describing its possibilities, let us visualize that the public relations department of the Medical Association is to be divided into four sections of activity—general business management, publicity and education, economic research, legal and legislative. The respective sections of the public relations department would assume the responsibility of properly caring for business problems; effecting commercial and lay contacts; coördinating lay and scientific activities; molding thought and leading auxiliary health movements; directing publicity and educational campaigns for the profession and the public; sponsoring and censoring general and special articles of news value; providing editorials; outlining programs for the press and county units; directing business service and research in new methods of

doing and obtaining business and the best methods of dealing with other economic problems of interest to the doctors of the Association; supplying the doctors and committees with information relative to the fitness of the respective candidates for public office with special reference as to how they would vote on matters of public health; investigating and advising in all matters submitted to the legislature; directing the legal aspect of business procedure of the Association and doctors; furnishing information concerning malpractice, systems of collections, as well as special information for the members upon request.

This department should issue a monthly bulletin to each member of the Association supplementing the official scientific publication and representing a medium for uniform guidance in business and public relations, thus intriguing the assistance of the small town or country practitioner, as well as the county medical units and the specialists of the city.

#### IN CONCLUSION

Yes, an efficient organization of this nature would cost money. However, if properly organized and managed, the indirect revenue to the individual physician would, within three years, be increased ten dollars for one contributed in support of the department, to say nothing of the intrinsic value to future generations of the medical profession and increased service to the public. One dollar per month from each member of the society would support a department which could put over a constructive program of education to the public and be of immeasurable value to the doctor in business guidance. We must not overlook the value of the diplomatic, ethical spreading of printer's ink, nor can we overlook the efficiency which has been developed in modern business procedure.

In estimating the value and usefulness of such a department of service, our imaginations must shift from the mental impressions molded by tradition to the horizon of the dawn of a new day. We must change our tactics from a losing battle in defense of professional egoism to an aggressive campaign for professional leadership in the health of the public or else be prepared to lose professional independence and become followers, subservient to lay and political domination. It can and must be done. There are many professional volunteers ready, awaiting only a well organized, modern department of our association for leadership.

We must treat problems of present-day medical economics symptomatically until a more specific plan, worthy of consideration, has been developed by a public relations department of the Medical Association.

The advice of the philosopher is now apropos: "Procrastination is the thief of opportunity. A thought to be worth while must complete itself in action."

423 Towne Avenue.

## STATE SPONSORED MEDICAL AID AT COST\*

By RALPH A. REYNOLDS, M. D.  
San Francisco

BOTH the medical profession and the general public are becoming definitely aware of certain defects in health conditions in this country, prominent among which are the high cost of medical service and the lack of effective preventive work. A possible solution to such problems as these defects present is that of centralized government control of health service. More specifically, suggestions for compulsory health insurance under government control are being advanced by a number of reformers.

The idea of such centralized control is, I believe, sound and in many cases works out satisfactorily. It is on the grounds of expediency, rather than principle, that I should be unwilling to endorse its adoption in this country at the present time, and should suggest instead a more conservative step as a remedy for those defects already mentioned.

## AMERICA NOT READY FOR COMPULSORY HEALTH INSURANCE

The introduction of a system of compulsory health insurance would not, I believe, be a welcome or a wholly beneficial one to the American public at the present time. It would necessitate the setting up of a vast and complex machinery of administration, which might be justified if the system were to embrace a complete program of social insurance, but hardly otherwise. It has been the experience of European countries that the adoption of health insurance leads generally to the subsequent adoption of a more extensive system of social insurance. The American public is not at the present time demanding *complete social insurance*. We are still too individualistically-minded. The public is not, as a matter of fact, demanding *health insurance*. Rather, it is demanding health service on terms which the average person can afford to pay. The public will be better satisfied and fully as well served, I believe, if under the present system preventive health service can be made easily available and *medical costs materially lowered*.

The average American family is able and willing to pay for medical services at moderate rates. If the man of average income could walk into the doctor's office for a consultation or a general health examination knowing that the expense involved would be only that of a customary charge for an office visit, he would not, I may venture to say, often hesitate on account of the expense. What keeps him away is the knowledge that the doctor will very likely (and rightly so) require a blood count, urinalysis and Wassermann, and possibly also an x-ray, basal metabolism and other laboratory work, as an essential part of examination and diagnosis.

\* Printed as part of this symposium on medical economics because of its relationship to that subject.

## THE NEWER METHODS OF DIAGNOSIS AND TREATMENT ARE EXPENSIVE

Our medical knowledge has increased at a phenomenal rate during the past twenty years, and the largest part of the increase in the cost of medical care arises from that new knowledge and the new methods based on it. This new knowledge makes necessary for sound medical practice the increased use of laboratories, hospitals, nursing, physical therapy, dentistry, new drugs and x-ray. Dr. Philip King Brown, basing his statement on records of the Southern Pacific Hospital during the last eleven years, estimates that the amount expended on laboratory and x-ray work has increased 650 per cent during that period. The only other item in medical costs which has kept pace to any degree is that of nursing service, which has increased 140 per cent. It seems logical, then, in seeking to reduce the cost of medical care that we turn our attention upon these items which have been largely responsible for its increase. The patient has been educated to know that such tests are necessary and that if he consults a doctor he must expect them. He knows, however, that they are all expensive. The total bill may run up no telling how high, but doubtless far above the initial fee for the consultation. Naturally the prospective patient postpones the consultation as long as possible.

## THE STATE SHOULD CONTROL SUBSIDIARY HEALTH SERVICES

This situation would, I believe, be greatly relieved if all laboratory and x-ray work were performed by our boards of health and given to the public at cost. Similarly, certain routine procedures both in prevention and treatment of disease could be carried out in health centers under our boards of health. Such procedures might include the administration of toxin-antitoxin for prevention of diphtheria, vaccination against smallpox, the use of other vaccines and serums, desensitization for allergic conditions, and the administration of salvarsan and bismuth for syphilis. The transference of such procedures to the departments of public health would materially reduce the cost of medical service to the public and would make that cost more accurately predictable.

This transference would, of course, deprive the private practitioner of a certain amount of income. However, I believe that the change, in the long run, would be a beneficial one: It would shift the emphasis to the more important type of service which the physician alone can give. It would remove a source of dissatisfaction and suspicion on the part of the patient, who now often feels that he is being influenced against his will into a series of expenses. It would clarify and make more sound the basis for medical charges—such a basis being rightly the skill, training and experience of the physician and his ability to handle a case successfully.



#### AMERICAN CITIZENS WOULD WELCOME SUCH SUBSIDIARY HEALTH SERVICE

In reducing materially the cost of health service, such a program would tend to bring more people to their physicians for routine examination, thus accomplishing something toward the ideal of preventive medicine.

These measures, though limited in scope and certainly not revolutionary, would, I believe, be a sound first step toward relieving conditions. To a large degree their advantage lies in their being readily applicable to our present system and capable of administration under our established public health machinery.

The American people will, I believe, welcome such a change, whereas they can hardly be expected to support unanimously the more radical change to compulsory insurance, with its stigma (to the American mind) of increased taxation, curtailing of individuality and possibility of graft and bureaucracy. The public would not, I repeat, welcome this more radical change at the present time. Nevertheless, unless a more *moderate* reform is instituted—one which actually relieves the burden of medical costs—the public may eventually be driven to make a more *radical* change. This has been the case in several European countries where conditions were formerly similar to our own. Physicians there failed to see the signs of the times and did nothing toward correcting the faults which the public demanded to have corrected. Consequently, they have been forced eventually to submit to radical systems of socialization. This the American medical profession may avoid if, instead of combating all change, it applies itself to the successful institution of such reforms as will give the public real satisfaction without radically altering our system.

490 Post Street.

#### THE PUBLIC HEALTH CENTER\*

By J. L. POMEROY, M. D.  
Los Angeles

THERE is no doubt that the Public Health Center has a distinct function of considerable importance in relation to the economics of medical care. The significance of the Health Center movement lies in the definite recognition of the factors of time, proper working tools, and correlation of effort, particularly as applied to a unit of territory. The most profound factor is the recognition that the problem of public health is closely related to the practice of medicine and the problems of the social worker.

#### CLOSE RELATION OF PHYSICIAN, HEALTH OFFICER AND SOCIAL WORKER

Heretofore the health officer, the family physician, and the social worker not only rarely came in contact, but had no common viewpoint of the

community's needs. The doctor has been criticized as being entirely too individualistic, as failing to see the relation to community needs. The social worker is criticized as failing to understand the medical phase of her client and is frequently accused of making diagnoses and prescribing medical treatment. The health officer comes in for his share of criticism for invading the province of the private practitioner and endeavoring to build what is termed "State Medicine." The conception of the Health Center in Los Angeles County is based on definite provision for the persons in all three of these agencies to work together in the same building, keeping accurate records each of their part in the program, and to adjust the difficulties by frequent discussion as the problems arise. These Health Centers which are maintained by Los Angeles County are an application of modern business principles in public work and the adoption of group action in dealing with problems as closely inter-related as medical economics.

#### HEALTH CENTERS ELIMINATE DUPLICATION

In their actual operation the focusing of efforts of these agencies eliminates duplication of effort and overlapping of work. Throughout the United States health activities have grown up in many different bureaus, both official and non-official. Hospitals and other agencies are located regardless of the territory intended to be served. In many large cities we find literally hundreds of agencies (in Los Angeles 127) engaged in some form of health or medical work. On the contrary, in rural districts and small cities these functions are relatively undeveloped. Thus comes about a failure in proper distribution of services—a tremendous concentration in a few institutions, while the small towns and rural districts remain undeveloped. In Los Angeles County the public health territory is divided into twelve districts, each with approximately 100,000 population, and a health center building is erected in each district in which are mobilized all of the existing medical, social, and public health services of a public character. Naturally this service does not touch the sphere of work of the private hospital, nor the class of people who are able to pay a physician for private medical care. It does enable us to focus on the family groups, rapidly and with great efficiency those resources existing in the district. It is a common-sense application of business principles to house under one roof those agencies engaged in work on the same family. The physician who in private office practice writes a prescription for a patient receiving city, county or state aid, is ordinarily unable to consult directly with the social agency who is to provide the means to fill the prescription, nor does he obtain a real picture of the family home conditions. In the health center, however, such a physician is in close daily contact with the social workers, the health officer, the school and other nurses and can adjust his plan of treatment much more intelligently.

\* From the Department of Health, County of Los Angeles. See, also, article in Miscellaneous column of this issue of California and Western Medicine on "Health Center Problems" (page 241).

#### HOW HEALTH CENTERS LESSEN COST OF ILLNESS

Furthermore, the modern program of public health, particularly in relation to tuberculosis, cancer, heart disease and mental hygiene means a much more elaborate equipment, personnel, and system of records than was formerly the case. In tuberculosis the modern discoveries of the use of the x-ray have changed our ideals regarding diagnostic equipment. Hence, the same situation that confronts the practitioner in a hospital exists in clinic and out-patient practice. In the health center by combining the financial resources of all departments better equipment can be secured and hence more accurate diagnosis becomes possible.

In many counties the obligation in the care of the poor is met entirely at the county hospital. Hospital treatment today costs between five and seven dollars a day. Treatment in health center clinics can be rendered from between fifty cents to \$1.50 per patient visit, depending upon the service rendered. Thus with proper equipment and proper organization the health center can relieve the county institution of hundreds of patients and save thousands of dollars in the course of a year.

#### BETTER CONTROL OF CONTAGIOUS DISEASES

The health officer, being in close touch with the physician, is able to get more prompt and accurate reports of the incidence of contagious disease and to render a greater service to the public thereby. The physician, through his daily contact with the community problems, is rendering a broader and bigger service than would be possible where he was struggling alone. In an hour, he can take care of twenty patients in the clinic of a health center where the diagnostic tests and other preparatory work have been performed by paid assistants of the public department, whereas, if he were treating these poor patients in his own office he would spend two or three times the amount of time and would be carrying, in addition, the expense of all history taking, laboratory work, and other accessories. Since it has been proven that from fifteen to twenty-five per cent, depending upon the character of the population, are unable to provide themselves with proper medical care and about fifteen per cent are unable to provide themselves with any medical care whatever, except institutional care as provided by public charity, it is absolutely necessary from a public health standpoint that at least those who are actually in need be cared for, and the more rapidly they receive care the less the drain on public funds.

#### ECONOMIC AND SOCIAL LOSS OF FORMER SYSTEMS

When we admit the facts that even today seventy-five per cent of the patients sent to our various public institutions for the care of tuberculosis are already in the advanced stages of the disease, and when we calculate that this means an actual cash loss of millions of dollars annually, we should as physicians consider it our deepest

responsibility to interpose more modern methods to discover and bring under treatment these patients earlier, if for no other reason than that of strict economy. Let our profession look these facts, as well as the facts in relation to cancer, heart disease, mental hygiene and other neglected fields, squarely in the face, and then ponder on what is to be done about it. I am sure that the answer in part will be the team work afforded by uniting our resources in local, neighborhood health centers. Whether the money be provided entirely by the government, by private philanthropy, or otherwise, the principles remain the same. Prevention is not only better but infinitely cheaper than cure. Too much money today goes into terminal work and much too little into prevention. The physician, health officer and social worker must work together in the solution of some of these general problems of medical economics.

Hall of Justice.

#### MEDICAL SOCIAL WORK AND PUBLIC HEALTH ACTIVITIES\*

By FRANK L. KELLY, M. D.  
*Berkeley*

BEFORE taking up the specific relationship of medical social work to the modern public health campaign it may be beneficial to consider briefly just what we mean by the term public health. At the beginning of this century there was a marked tendency to separate medical functions into preventive and treatment services. The preventive services were allocated to public health and the treatment functions to individual health. Such a distinction was entirely artificial, for it is perfectly obvious that the public health is made up of the health of every individual in the community and that we cannot have good public health unless we have good individual health.

#### A DEFINITION OF PUBLIC HEALTH WORK

Professor Winslow,<sup>1</sup> in his admirable definition of public health, does not draw any sharp line between prevention and treatment. He defines public health as

"the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of the medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure every individual in the community a standard of living adequate for the maintenance of health."

To achieve such a result necessarily calls for the combined team work of physician, nurse, public health worker, social worker and, in fact, of every individual in the community.

\* From the Department of Public Hygiene, University of California.

\* Read before the Health Section at the California Conference of Social Workers, held in the city of Berkeley, 1931.



## PIONEER SOCIAL PROBLEM STUDIES

In the beginning of the public health movement, both in this country and in England, we find that it was closely tied up with the movement for social betterment. The report of the Massachusetts Sanitary Commission, published in 1850, was drawn up by Lemuel Shattuck, a statistician and a student of social problems. He did not confine his recommendations to such public measures as water supply, sewage disposal, and sanitary police, but recommended studies of the effect of immigration on the health of the people, studies of the health of school children, better training of physicians and nurses, the keeping of family records of disease, and routine physical examinations. We see that Shattuck, in this greatest of all American public health documents, did not contemplate any marked separation of treatment and prevention but that he made recommendations tending to provide medical care and supervision for everyone, and that social betterment and health were closely allied.

PREVENTIVE MEDICINE AND SOCIAL SCIENCE  
WORK

With the rapid development of the scientific knowledge regarding health and disease in the latter part of the last century, preventive medicine seemed to draw away from the slower development of the social sciences. The laboratory absorbed the attention of the physician and the public health worker and they became impatient with anything that did not immediately lend itself to laboratory experiment. The development of methods of purifying water, disposing of sewage, safeguarding milk and food supplies and preventing the spread of infection showed results that could be measured statistically. Typhoid fever, yellow fever, malaria and the environmental diseases were gradually being brought under control. It was hoped to provide health for everyone whether they wished it or not, through the sanitary control of the environment in which they lived.

## THE PERIOD OF WORK ON THE INDIVIDUAL

In the early part of the twentieth century the health of the individual, particularly the infant and the school child, became of interest to the health department. It was realized that some means of getting the accumulated scientific knowledge over to the people was necessary and the public health nurse was the response to this need. The control of tuberculosis, the reduction of infant mortality, the health of the school child depended on the supervision of the individual, as well as on the control of his environment. Individual family social problems became important from the public health standpoint and the necessity of close coöperation between the public health nurse and the social worker was becoming more apparent. Doctor Hastings recognized this in Toronto when he planned to house the district public health nurses in the same quarters with the social workers.

Even at this time there seemed no great need for the medical social worker in the public health program, for the whole emphasis was placed on prevention; the treatment of the patient, with the exception of the communicable diseases, was of little interest to the health department.

Let us now look at the diseases considered the main public health problems today as compared with those of thirty years ago. Statistics compiled by the American Society for the Control of Cancer show that in 1900 in the United States registration area tuberculosis caused 201 deaths, as against 81 in 1927; pneumonia 181, as against 81; heart disease 132, as against 196; nephritis 89, as against 93; cerebral hemorrhage 72, as against 84; and cancer 63, as against 96. These two pictures are quite different, and the health authorities are now faced with the problem of controlling diseases to which they gave relatively little thought thirty years ago. I think we can safely say that the greatest field for the further reduction of our mortality rates and the greatest problem facing us at the present time lie in the diseases of adult life, the diseases of the cardiovascular-renal system, cancer, the venereal diseases, and tuberculosis.

The control of these diseases does not depend alone on prevention, but just as much on early diagnosis and treatment. It may not be necessary for the health department to actually provide the diagnostic and treatment service but such service must be provided to meet the problem adequately.

All of the diseases just mentioned have several points in common, they usually tend to become chronic, they usually cause gradual loss of earning power if not arrested, they usually give rise to social and economic problems in the family, and their proper treatment and supervision depends largely on the education of the patient and the family.

## EDUCATIONAL PROPAGANDA IMPORTANT

That the modern public health campaign is in the era of education is forcibly brought out when we consider the control of such diseases. Education was the great problem in tuberculosis, and education is the great problem in heart disease, cancer and the venereal diseases.

## PLACE OF MEDICAL SOCIAL WORKER

Can the medical social worker be of assistance in preventing sickness and death from these diseases? If so, then she has a definite place in the public health program and takes her place with the public health nurse and the bedside nurse as an aid to the physician and the health officer.

TUBERCULOSIS, CANCER, HEART AND VENEREAL  
DISEASE PROBLEMS

The similarity between the problems of tuberculosis and heart disease is very striking and is well brought out by Pattison.<sup>2</sup> After showing the difference in the age groups affected, he draws attention to the close similarity as a cause of industrial disability and invalidism; to the fact

that the discovery of the heart condition is largely accidental, just as was the discovery of the early case of tuberculosis at the beginning of this century; that the patient must know his problem and how to handle it; that the public must be acquainted with the actual facts without creating cardio-phobia, as tuberculo-phobia was created in the early days of the tuberculosis campaign. He then says:

"Now begins the treatment. For the acute attack and for those cases of chronic heart disease in which decompensation is threatened or has occurred, rest in bed is the first requirement. As in active tuberculous disease, no remedy equals rest. Rest early enough in the disease, at night, and in the day; rest for weeks and months; rest of body and mind; rest from worry.

"Proper diet and fresh air are important in both diseases.

"Medication is more important in most forms of heart disease than in tuberculosis. Hydrotherapy and passive exercise, so sadly neglected in tuberculosis, are important in the management of heart trouble.

"Climate is a minor factor in both diseases. Of course, by 'climate' I do not include high altitudes.

"Graduated, supervised exercises are of supreme importance in the convalescent treatment of both groups. Walking controlled by distance is the best form of exercise during convalescence.

"Occupational therapy, by which we mean any activity, mental or physical, definitely prescribed and guided, has been exceedingly useful in the treatment of both the cardiac and the tuberculous. This includes handicraft work, nature study courses, etc.

"There are no definite standards by which to determine cardiac capacity and vital capacity in the tuberculous. The late Dr. Horace Howk well stated that 'for the rehabilitation of the modern cardiac there is required a study of his past, observation of his present, and an estimation of his future capacities.' Each individual must be studied from the standpoint of his physical condition, intellectual capacity, and character development. Without strength of character, it is difficult to recover from either disease.

"Education of the patients and their families is essential to the welfare of both the tuberculous and the cardiac. The patient must learn to live with his handicap and the family must know how to help him do it. Both the cardiac and the tuberculous are subject to relapses and recrudescences, and they must be taught how to avoid them."

Writing on the control of tuberculosis, Peers,<sup>3</sup> in speaking of the problem of those infected but without symptoms, says:

"First, we must continue our efforts to discover those cases which are just on the borderline . . . second, we must remove the various factors of strain; or, at least mitigate their effects. . . . And really the great hope for the future lies in education; education not only of the few but of the masses; education not only regarding tuberculosis and its eradication, but education regarding all subjects relating to health and health giving habits and mode of life."

In great part, the above could be applied to cancer and the venereal diseases. It is true that each disease presents a somewhat different problem, but the control measures are largely the same; besides the general preventive measures carried on by the community, we have the medical attack, the social and economic attack, and the educational attack on each of these major problems in public health. And the medical social worker is of assistance in each of the above control measures.

#### FUNCTIONS OF THE MEDICAL SOCIAL WORKER

The functions of medical social work as given by MacEachern,<sup>4</sup>

"should be to assist the doctor in the scientific care of the patient through medical-social case study, requiring the assembling, analyzing and evaluating of all data obtained for the purpose of working out a proper medical-social plan correlated with diagnosis, treatment and follow-up; and that the secondary functions should be: (a) to assist the administration of the hospital in the better understanding of the social aspect of the patient; (b) to induce the patient to take treatment better; (c) to relieve the patient and family of physical and mental worries; (d) to cooperate with public health, welfare agencies and official bodies in promoting better community relations; (e) to cooperate with schools of nursing and universities in the education of the student nurse and social worker."

There can be no question but that the functions of the medical social worker as given above have a very definite place in the control of tuberculosis, heart disease, cancer and the venereal diseases. I do not mean that she has no place in the other public health problems such as the reduction of infant and maternal deaths, mental hygiene, etc., for she is of assistance in practically every part of the public health program. It is, however, in the above problems that it is impossible to do without her, for, she gives the physician in charge of the patient such social and economic facts as are pertinent to his adequate medical care; she interprets to the patient the physician's orders and directions, and sees that they are properly understood; she makes it possible for the patient and family to carry out the advice of the physician by making the necessary social and economic adjustments; she follows up the patient in order that adequate treatment may be carried out; she brings in for examination the contacts of those patients suffering from the disease if it is communicable; she has an opportunity for educational work in health promotion and disease prevention second to none but that of the public health nurse.

The medical social worker is giving service in some phases of health work not covered by any other workers, and in other phases is giving valuable assistance to those already in the work. There can be no question of the value of such service in the modern public health program, and the physician and clinic nurse, the health officer and public health nurse should welcome the medical-social worker as an additional member of their team which is endeavoring to provide adequate medical and nursing care for every individual in the community.

State Hygiene Laboratory.

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## MEDICAL LICENSURE IN CALIFORNIA

TWENTY YEARS AGO AND TODAY

By C. B. PINKHAM, M. D.  
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IN a recent discussion of the economic problems surrounding the practice of medicine, the editor of *CALIFORNIA AND WESTERN MEDICINE* suggested that the writer prepare a brief paper comparing the status of medical education and licensure of twenty years ago with that of today.

## NUMBER OF MEDICAL SCHOOLS

The report of the Council on Medical Education of the American Medical Association, published August 16, 1930, shows eighty-seven acceptable medical schools in the United States, as compared with 152 actively engaged in medical teaching some twenty years ago. In 1930 the eighty-seven acceptable schools in the United States were educating 21,597 students, said to be "the largest enrollment since 1909 . . ." Since 1919 there has been an average increase in enrollment of 423 students each year. It is interesting to note that 70 per cent of all the medical graduates in 1930 held collegiate degrees, as compared with only 15.3 in 1910.

## COST OF MEDICAL EDUCATION

Medical education during the past twenty years has progressively developed, both in cost and duration of course of instruction. Fees have mounted from an average of \$118 annual tuition in 1910 to \$307 in 1930, with 27.6 per cent of the medical colleges requiring an annual tuition fee of from \$350 to \$450.

Significant is the comment made by the Commission on Medical Education in its 1929 report: "The present cost of medical training to the student, in both time and financial outlay, is not without an important sociological bearing. The study of medicine is becoming increasingly difficult for those of moderate circumstances, from which group of the population many of our great physicians have come. The increasing tuition charges in many schools, however, are offset by many forms of scholarships and fellowships . . ."

## STATE BOARD REQUIREMENTS

State Board requirements, as reflected in the various State Medical Practice Acts, have not kept pace with advancement in medical education. The 1930 records show Wyoming to be the only state that does not require a showing of preliminary education. Delaware, Missouri, Nebraska and Nevada still maintain the comparatively obsolete preliminary education requirement of a four-year high school, whereas California, Connecticut and Pennsylvania laws demand only one year pre-medical college work. The Medical Practice Acts of thirty-nine states demand two years of pre-medical college work. Although only thirteen medical colleges require a one-year internship in order to obtain the medical degree, sixteen medical examining boards demand a one-year internship of applicants for a license to practice medicine.

## PROPORTION OF PHYSICIANS TO POPULATION

It is interesting to learn that the United States has a larger supply of physicians per capita than any other country, as shown in the 1930 report of the Council on Medical Education of the American Medical Association, which lists 126.6 physicians per 200,000.

The 1910 census showed California's population as 2,377,549, with 5353 licensed physicians and surgeons, of whom 2385 were members of the state medical society. With a population of 5,677,251, California is credited in the 1931 American Medical Association directory as harboring 10,109 physicians and surgeons; however, the 1931 records of the Board of Medical Examiners show only 8662 graduates of medical schools actively engaged in the practice of medicine and surgery in our state. This discrepancy of 1447 additional physicians and surgeons listed in the 1931 American Medical Association directory comprises both unlicensed physicians from other states residing in California and 816 graduates of osteopathic schools licensed as physicians and surgeons in the state of California, under jurisdiction of the Board of Osteopathic Examiners.

Some 5019 of California's physicians and surgeons are listed as members of the California Medical Association. It is evident that both California's licensed medical college graduates and the membership in the California Medical Association has kept pace with California's increase in population.

## CALIFORNIA LICENTIATES IN SECTARIAN GROUPS

In discussing our economic problem in California, we must keep in mind those licensed by the Board of Osteopathic Examiners and the Board of Chiropractic Examiners, the former, according to the 1931 record, totaling 1480 licentiates and the latter totaling approximately 2747.

## WHAT PRESENT DAY MEDICAL STUDENT FACES

Brave indeed is the student who decides to become a medical practitioner after contemplation of the increased cost of medical education, the added time required to complete the course, the curtailment of the sphere of practice through modern preventive medicine, now rapidly lessening the heretofore prevalent diseases, the inroads of various nursing services, hospital associations, health centers, welfare organizations and a host of other lay activities rapidly assuming the prerogative of treatment of the sick and afflicted.

623 State Building.

## DISCUSSION

ON PAPERS OF DOCTORS GRAVES, CROSBY, BROWN, FRENCH,  
REYNOLDS, POMEROY, KELLY, AND PINKHAM

LYELL CARY KINNEY, M. D. (1831 Fourth Street, San Diego).—This symposium on medical economics, consisting of the papers presented at the San Francisco meeting, is a complete and accurate survey. We should congratulate these authors on the keen analysis and the clear, forceful statement that characterizes this presentation and we should appreciate the vast amount of investigation upon which it is based. The spirit of optimism that flows through these papers



is most encouraging. The danger of an attitude of indifference, of laissez-faire, or of "static defense" only emphasizes the need for efficient organization and constructive effort. Throughout is the promise that the California Medical Association can supply the need of adequate medical care for all classes and can meet the requirements of preventive medicine.

Doctors Graves, Crosby, Brown, and French have each presented the need for a bureau of public relations in charge of a full-time highly trained executive. Each of them has pointed out as a major problem the distribution of medical costs on an insurance basis. Therefore this bureau should have liaison with the best actuarial experts and the foremost insurance leaders in the country. It will come within the province of this bureau to apply to our California problems the findings of the national Committee on the Costs of Medical Care and of other national committees and economic foundations. The scope would include coöperation with our component county societies in the study and care of the needs peculiar to each community. The bureau could assist the county societies in developing definite policies in public relations and could stimulate coöperation in public health and social service activities. The importance of such a bureau cannot be overestimated. As Dr. E. Starr Judd, president of the American Medical Association, stated in regard to the similar activity of the American Medical Association: "This bureau must have the best man-power that can be obtained."

Our standing committees of the California Medical Association are giving generously of time and effort in their investigations and work for our Association, but they need the coöperation of a full-time efficient bureau if this great organization is to meet its obligations in the prevention of disease and the distribution of adequate medical care.

The California Medical Association should weigh seriously Doctor Crosby's suggestion of a Chair of Medical Economics in each of our medical colleges. It will aid materially in the solution of our problems if the future graduates in medicine are thoroughly acquainted with the social, economic and business phases of medical practice.

It is interesting that one author has singled out all laboratory and x-ray work, the treatment of allergy and syphilis, as the factors of medicine that should be socialized. He contrasts these with "the skill, training, and experience of the physician and his ability to handle the case." It would be just as logical to include all minor surgery, normal deliveries, and routine nose and throat treatments in this group. There is certainly no phase of medicine that requires greater clinical experience or more dependable medical and surgical judgment than any one of these four which he has chosen to place under government control. This sacrifice to the gods would not stem the tide, and certainly would not make for better medicine or more adequate medical care. However, a careful evaluation of our methods and a searching self-appraisal of our relations with the public are necessary if the profession is to adjust itself to modern conditions.

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RODNEY YOELL, M. D. (490 Post Street, San Francisco).—The group of articles published in this number of CALIFORNIA AND WESTERN MEDICINE is significant in that it demonstrates to the medical profession recognition of the fact that some change in the present system of the practice of medicine is imminent.

Whether one takes a conservative view with Doctor Graves, or is willing to step into at least a tepid communism with Doctor Reynolds, or else see, mind to mind, with the "coöperative social urge" of Doctor Brown, is a matter of some preference and considerable choice; but that the inevitability of change in the present system is apparent should be patent to all.

It would seem to the writer that three definite factors have to be considered which, even in spite of the magnitude of the problem, loom large and

distinct from the sea surface of theories, truths, and half-truths which float about their bases:

First: A change will come inevitably, due to the economic evolution in this country similar to the industrial revolution in Europe of some sixty to seventy years ago. This change will be expressed by laws regulating medical service and under these laws the profession must work and develop.

Second: This evolution will tend to generate laws under which lay domination will be forced upon the profession. If, however, the profession be wise, it can mould these laws into a form more in consonance with its own desires and, because of the inherent technical knowledge possessed by the profession on this subject, it can and should develop these laws to the best interests of the public and without damaging itself.

Third: The endeavor to meet the cost of health by appropriate legislation will follow either one of two forms: that is (1) a direct state aid, or a subsidy in some form from governmental resources; or (2) the much more preferable instrument of insurance can be used in this field, as it has been applied in alleviating fire, theft, and damage losses.

We must recognize from all available data that practically only 25 per cent of the total cost of illness is paid to the profession. To curtail the cost in this direction, therefore, bespeaks for a definite lowering of the economic and social standards of the members of the medical profession, and should be fought persistently, logically, and intensely.

The fact that the health-cost problem lies not in this sphere should be clearly emphasized, and it should be, furthermore, demonstrated that the basic maintenance rate, namely, *the rate at which a patient can be maintained* even before the healing agencies are brought to his aid, is the field for our most intense inquiry. These items of purely animal needs, such as food, housing, heat and sanitation, apply to the well equally with the sick and should not be written into inquiries of health cost matters as items of purely medical expense. "Maintenance rate" is one item, the cost of "healing agencies" another. To supply the former is definitely a sociological problem and the mechanics of meeting their costs must be framed by laws sanely and soundly drawn.

To justify active participation by the state or its agencies in furnishing basic cost funds, one must certainly develop a social doctrine not only new to this country, but indeed one that heretofore has been held to be the antithesis of our at present accepted basic political philosophy.

It would mean because a man is ill he could by right look to the state to furnish and finance material which admittedly he has no right to during his well or health periods. In other words, sickness compels the state to furnish food, clothing, housing, etc., to a citizen from its own resources irrespective of whether the man can, has been able, or could be able to furnish the cost of these items himself.

One feels that even the slightest wedge which is permitted to enter in the application of this theory, whether as to the costs of laboratories, x-ray examinations, et cetera, will ultimately insinuate itself so far into our political system as to cleave it entirely. England's "dole system" exemplifies this.

Therefore let medical men be guarded before they urge this procedure under misguided and seemingly plausible statements of "state aid at cost" or "the duties of the profession to furnish health protection" at the lowest possible cost figure.

The right to practice is a "property right," and if we neglect to insist on its maintenance as such we are in the same position as a merchant who, knowing that food control is somewhat a matter of governmental concern, would tolerate the furnishing of food materials free or at cost by the state to individuals who in the recognized scheme of things should be able to buy and pay for such food materials themselves.

The other alternative, namely, that of social insurance, eliminates these difficulties and would seem to



be the logical development of our political philosophy. Far from placing our citizenry on the same level as a European peasantry, it would furnish adequate funds to meet the cost of illness, *and raise these same funds by private effort, but under governmental sanction.* Each individual, unless he be absolutely indigent, would be required to allocate certain of his resources against the inevitable period of illness. These funds, utilized as insurance, would and could unquestionably care for the greater percentages of illness striking the greatest number of people. The entire white collar class, about which so many crocodile tears have been shed, could in this fashion fend for itself and maintain its respectability without requiring the medical profession to surrender its independence and place itself under what would unquestionably be a political bureaucratic system of lay control of the practice of medicine.

Several funds are now so working. The Endicott-Johnson plan, for example, runs for about \$21.50 per year per family and this would seem to be adequate to furnish the essentials for meeting the cost of health. Actuarial data should be gathered on this question with the end in view that personal insurance carried by the individual under sanction and supervision by the state should be the goal to be achieved.

Compulsory insurance has an ominous sound in the use of the word "compulsory," but the essence of government lies in its very ability to compel individual action, provided such authority has previously been given by its component members.

Surely the state could require merely the most commonplace type of forethought as a social duty obligatory on its citizens, rather than split our social structure and place an entire profession and its rights under the domination of lay political appointees.

These matters require the closest scrutiny. General statements of the happy condition of Europeans under native systems should be judged by actual personal observation; after which much of their glamour is lost. Doctor Crosby does well to call attention to Denmark's reversal to the old type of practice, and it is well known that in England the average person jumps his panel as soon as he is financially able to seek medical aid for himself.

No apologies are needed for the profession's attitude toward the public. In the main our banners are clean and unsullied. We should continue to carry them so, but carry them we must into fields of battle which will be hotly contested. False issues and the siren songs of plausible theories are legion. We must recognize the basic principles from which we draw our strength and fight to maintain these at all costs.

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JOHN C. RUDDOCK, M. D. (1930 Wilshire Boulevard, Los Angeles).—The stupendous task as outlined by Dr. John H. Graves in his report brings out the fact of the various ramifications of any problem dealing with medical economics. To note the complexity of the subject as evidenced by seven different papers, dealing with seven different phases of the same subject, brings to mind the famous motto of a Greek philosopher, "There is no panacea for all ills."

Dr. Rexwald Brown has hinted in his last paragraph at a phase that has a very direct bearing on the solution of the problem of medical economics; and it is the biggest argument against state medicine, medical services, hospital organizations, health insurance, and like activities. To adopt a major premise that the services of all men practicing medicine are the same is, unfortunately, not true. Taking for granted that the medical training of all physicians is exactly the same, there is, however, a marked difference in (1) reasoning power; (2) personality; (3) tact; (4) industry; (5) progressiveness; (6) sympathy; and (7) kindness.

These cardinal virtues make the successful practitioner in medicine.

The competency and equality of medical service is not assured to the people under the many divergent laws enacted throughout the United States and the

personnel making up the various licensing boards. To a great mass of citizens the term "doctor," whether he be regular, osteopath, chiropractor, optometrist, physiotherapist, or cultist, is the same. Their judgment and opinion carries equal weight.

Brains cannot be standardized, which we as medical men should know. If this were possible, then it would be simple to adopt a state-wide standard fee schedule or adopt a state-wide socialized medical program. The art and the practice of medicine always has been and must always be individualistic if the "service to the patient" is paramount.

## CIRCULATORY CHANGES DURING SPINAL ANESTHESIA\*

By M. H. SEEVERS, Ph. D.

AND

R. M. WATERS, M. D.

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A COMPREHENSIVE study of the factors involved in the circulatory depression accompanying spinal anesthesia has been retarded by the generally accepted belief that visceral vasodilatation resulting from splanchnic nerve paralysis is responsible for the major part of the syndrome. Some of the recorded advantages of spinal anesthesia are "contracted viscera," "absence of bleeding from gastrointestinal operations," "bloodless Cesarean sections," and comment as to the anemic appearance of the viscera during laparotomy. If the altered distribution of blood to the splanchnic area were responsible for such a profound fall in blood pressure as sometimes accompanies spinal anesthesia, one should have no difficulty in demonstrating a greater quantity of blood in the viscera.

It is interesting that very little attempt is made to correlate these paradoxical statements, especially in view of the fact that a subarachnoid block as high as the nipple line involves other structures than the region innervated by the splanchnic nerves. Physiologists have long recognized that the normal tone and contractility of skeletal muscle play a major rôle in the movements of capillary and venous blood. Functional severance of the motor nerves to over half the skeletal muscles must at least be considered a factor.

A secondary if not so important a factor in the control of tone of blood vessel musculature, is the acid-base balance of the blood. Increase in the H-ion concentration is known definitely to produce a lowered tone of vascular muscle. That this increase occurs in spinal anesthesia will be made evident later in this paper.

An additional factor which has been largely overlooked is intercostal nerve paralysis. In view of evidence presented before and confirmed in the present paper, it is one of prime importance. Gray and Parsons,<sup>1</sup> in a clinical study of the subject published in 1912, attribute the "main fall" of blood pressure to "thoracic paralysis

\* From the Departments of Pharmacology and Anesthesia, University of Wisconsin Medical School.

\* Preliminary report. Extended studies will be reported elsewhere. Read before the general meeting of the California Medical Association, at the sixtieth annual session, San Francisco, April 27-30, 1931.



which is not compensated for by overaction of the diaphragm and consequently the aspiration action of the thorax is diminished." They attribute the inability of the diaphragm to adequately compensate to the flaccid paralysis of the musculature of the abdominal wall. They suggest that the resultant lowering of intra-abdominal pressure diminishes the normal pressure on the abdominal veins.

To completely ignore paralysis of splanchnic nerves and vasoconstrictor nerves to the skin and skeletal muscle of the region anesthetized, as factors concerned in the circulatory depression, would be as shortsighted as to consider them alone as responsible. It is obvious that an interruption of the normal pressor pathways to these regions prevents a compensatory constriction to combat the depression resulting from the increased capillary and venous bed in skeletal muscle. Furthermore, an extremely low arterial pressure with its attendant medullary anemia and partial anoxemia is known to depress the sensitivity of the vasoconstrictor center. This being the case, compensation by vasoconstriction in those regions not involved in the block is rendered more and more difficult. A vicious cycle is gradually established: low blood pressure, lowered central vasoconstrictor tone, further lowering of blood pressure.

#### RÔLE OF OXYGEN IN CIRCULATORY DEPRESSION

A searching analysis of all the factors involved leads us eventually to the point where we must question as to whether oxygen want should be considered as a primary or a secondary cause of the circulatory depression. When carefully considered, all must agree that the whole problem ultimately centers itself on the supply of oxygen to the medullary centers, the heart and vascular tree. Authorities may disagree as to the stimulant or depressant effect on cells of mild degree of oxygen want, but there is no disagreement as to the effects of severe grades of anoxemia. That the result is depression remains unquestioned.

A survey of all the methods used in the treatment of circulatory depression accompanying spinal anesthesia, whether these be pressor drugs, posture, cardiac stimulants or other means, leads one to the conclusion that anesthetists are trying to accomplish the same purpose, namely, to supply oxygen to those cells which give evidence of depression. Why then have anesthetists largely disregarded the easiest method of supplying this lack, namely, furnishing to the patient oxygen-rich atmospheres. Attempts have been made in this direction by instructing the patient to breathe deeply. Those clinicians who have tried this method agree as to its beneficial effect.

#### BASIS OF THE PRESENT STUDY

The present study is an outgrowth of the clinical observation that patients with spinal anesthesia, when breathing oxygen-rich mixtures, maintained a better blood pressure, felt better subjectively, were less nauseated, and made a better postoperative recovery (other factors such as preoperative medication, posture, et cetera,

remaining equal) than those breathing unfortified air. The hyperpnea and increased oxygenation associated with inhalation anesthesia when superimposed upon spinal block often results in an improvement in blood pressure.

Analysis of blood and alveolar oxygen in patients with spinal anesthesia and arterial blood gases in dogs under similar conditions confirmed our original belief that the oxygen tension in the tissues must be relatively low during the period of circulatory and respiratory depression. Samples of venous blood following a spinal anesthesia with circulatory depression revealed a lowered oxygen content and capacity with a raised  $\text{CO}_2$  content, diminished  $\text{CO}_2$  capacity, and a decreased pH. Increase in  $\text{CO}_2$  content with decrease in the pH would of course increase the dissociation of oxyhemoglobin and diminish its capacity to carry oxygen. Samples of alveolar air reveal about the same grade of oxygen shortage and  $\text{CO}_2$  increase that accompanies other respiratory depressants, the barbiturates, etc. Deficient lung ventilation and associated circulatory depression allow an accumulation of  $\text{CO}_2$  in tissues. As mentioned before, this is probably a considerable factor in lowering the tone of vascular muscle.

Isenberger and Lundy,<sup>2</sup> as part of a study on untoward reactions during block anesthesia, personally communicate to the authors the following unpublished experiment. A dog weighing thirty kilograms was given 2500 milligrams of procaine (50 per cent concentration) in the lumbar region with a resultant complete paralysis of the central nervous system. The animal was kept alive ten hours, adequately ventilated by alternate inflation and deflation of the chest. During this time, without the use of stimulation and with the animal in the horizontal position, no change in blood pressure or pulse rate was observed. Another animal given 1250 milligrams was respired five hours without noticeable change in pulse rate or blood pressure. In each case the diaphragm became active and it was possible to discontinue the use of the respiration machine.

North and Ferguson,<sup>3</sup> working in Ravdin's laboratory at the University of Pennsylvania, recently communicated to the authors the results of an unpublished experimental study of spinal anesthesia. At the time of writing they had arrived at the following conclusions:

1. "Section of the splanchnic nerves does not cause a fall of blood pressure which is comparable to that seen after the injection of novocaine for spinal anesthesia.
2. "Injection of the anesthetic after the placing of a ligature below the fifth thoracic segment does not cause a fall in blood pressure similar to that found in spinal anesthesia.
3. "Injection of the anesthetic above the ligature will cause a drop in blood pressure.
4. "The fall of blood pressure is not due to the systemic absorption of novocaine.
5. "The fall in blood pressure occurs with a slowing, diminution or a falling out of thoracic respiration.



6. "The fall in blood pressure is proportional to the number of sympathetic fibers paralyzed by the anesthetic."

#### EXPERIMENTAL EVIDENCE

By means of the experiments herein presented we attempted to answer the following questions:

1. Is artificial respiration, which simulates normal respiration, effective because it maintains the normal condition of intrathoracic pressure, thereby partially maintaining an artificial circulation, normal or nearly normal cardiac output, etc., or because it produces an adequate ventilation and proper oxygenation of blood, or both?

2. How much of a factor is splanchnic paralysis?

3. Is ephedrin effective in combating the circulatory depression of spinal anesthesia and, if so, what factors determine its ability to raise a lowered pressure or maintain the original pressure?

The large majority of the following experiments were performed under sodium barbital anesthesia in dosage of 250 milligram/kilogram administered intravenously. We found this dosage in the average dog to produce no marked change in the systolic blood pressure, although the pulse pressure was considerably reduced.

This anesthetic was necessary during the initial experiments in order to perform laminectomy for subarachnoid injection. It is difficult to be positive of a subdural block by ordinary puncture in the dog due to the position of the spinous processes. Recently we have constructed a hollow trephine just large enough to permit the passage of an ordinary spinal needle so that injection at any level may be accomplished in the intact animal. An ordinary three-inch 17-gauge needle is milled with cutting teeth. The lamina can be traversed very rapidly, the trephine left in situ, and the smallest needles introduced through the dura without danger of leakage. The use of sodium barbital as an anesthetic has been controlled by performing experiments under nitrous oxide and ethylene, and by infiltration anesthesia alone.

In comparing the effect of arachnoid injections of novocaine in the anesthetized dog (sodium barbital or gas) with the unanesthetized dog (infiltration), we observed a greater reaction to a block of similar height in the former. However, the results were quantitatively rather than qualitatively different. We likewise observed more of a circulatory depression following pre-operative administration of morphin-scopolamin than in animals not receiving such medication. It would appear that any procedure which alters the ability of the cell to utilize oxygen, or diminishes minute volume respiration, or causes skeletal muscle relaxation, when superimposed upon spinal block, will aggravate the circulatory depression. In view of these observations, premedication clinically with any of the depressant drugs, unless compensated for by respiratory stimulants or the exhibition of oxygen-rich atmosphere, may be expected to contribute to the low blood pressure.

In order to determine the relative importance of the previously considered factors, the following experiments were performed on dogs. The dura was exposed by laminectomy at the fifth thoracic segment and at the seventh cervical segment. Ligatures were placed so as to compress the dura and obliterate the subdural space at the point of ligature. Novocaine solutions were injected in sufficient quantity to produce both motor and sensory paralysis below the fifth thoracic segment, between the fifth thoracic segment and the seventh cervical segment, and above the seventh cervical segment. The cord was also sectioned at these levels in different experiments.

The following results were obtained:

1. Section of the cord at the fifth thoracic segment resulted in a slight drop in systolic pressure of 5-10 millimeters of Hg.

2. Section of the cord at the seventh cervical segment resulted in a drop in blood pressure to 35-40 millimeters systolic.

3. Subarachnoid injection of novocaine below the ligature at the fifth thoracic segment resulted in a slight drop of 5-10 millimeters in systolic pressure.

4. Injection of novocaine between ligatures placed at the fifth thoracic segment and the seventh cervical segment produced a fall in systolic blood pressure to 40-50 millimeters of Hg.

5. Injection of novocaine above and below a ligature at the seventh cervical segment caused an almost immediate cessation of respiration with a drop of systolic pressure to 0.

6. Neither double vagotomy nor bilateral extirpation of the stellate ganglia or both have any marked influence on the circulatory reaction to cord section or high spinal block.

These findings agree closely with the clinical observation that spinal anesthesia, which involves none of the thoracic musculature, carries with it little danger from circulatory depression.

In view of the clinical observations of Gray and Parsons and the conclusions of North and Ferguson from animal experimentation, coupled with the evidence presented herein, we must arrive at the conclusion that splanchnic paralysis is at most only a contributory factor in the circulatory depression. Moreover, complete cord section above the origin of the splanchnics produces only the slight drop in blood pressure, termed by Gray and Parsons the "preliminary fall" as contrasted to the "main fall" accompanying complete thoracic paralysis.

We were impressed with the close parallelism existing between the extent of intercostal paralysis and the degree of circulatory depression. The intercostal nerves, therefore, were isolated under barbital anesthesia, blood pressure record taken, and intercostal nerves sectioned. Blood pressure dropped gradually in twenty-four minutes from an original systolic of 116 to 50 millimeters Hg. The gradual drop suggested that the fall of blood pressure was largely secondary to increasing oxygen want. It is logical to assume that were the effect merely a mechanical one of a



diminution in normal negative intrathoracic pressure, a more rapid blood pressure fall should ensue.

To study the effect of maintaining a normal or nearly normal chest activity in the presence of total intercostal paralysis following cord section and novocaine block, we constructed a box on the principle of the Drinker artificial respiration apparatus. The body of the animal is placed within the box, the head and neck protruding through a rubber dam. Rhythmic alterations of negative and positive pressures created within this box compress and distend the thorax to produce a nearly normal chest activity.

Using this device, it was observed that we could maintain the original blood pressure after a cord section at the seventh cervical segment or after a sensory and motor paralysis produced by intradural novocaine injections involving the whole central nervous system, in both the barbitalized and unanesthetized dogs. This confirmed the unpublished experiments of Isenberger and Lundy. We were still at a loss as to whether our result was due only to active chest movements with its mechanical aspiration of venous blood or to good ventilation of the lungs and proper oxygen supply. That both factors are concerned was evidenced by the following typical experiment.

A dog was given thirty milligrams morphin sulphate and one milligram scopolamine hydrobromide. Spinal anesthesia was induced to a height where all intercostal activity was paralyzed. Systolic pressure dropped from 180 millimeters Hg to 80 millimeters Hg and was on the down grade. Artificial respiration by the Drinker type respirator immediately brought the blood pressure to 200 systolic. Several periods of anoxemia induced by stopping the respirator, again brought the pressure down to 70. After each period of low blood pressure, chest movements induced by the respirator were less effective in bringing blood pressure back to normal. With respirator in constant action, a systolic pressure was finally established at 120 millimeters Hg. Increase of oxygen supply, effected by passing oxygen through a nasal catheter, in a short time brought the blood pressure to 200, where it was maintained. With oxygen cut off, blood pressure again established itself at a level of 120 millimeters Hg. Oxygen-enriched air always caused a rise of blood pressure even in the presence of relatively normal chest movements. This was similarly observed many times also in animals receiving barbitol as a basic general anesthetic.

#### EPHEDRIN

Ephedrin, given prophylactically previous to subarachnoid block, has many advocates.<sup>4</sup> Others have considered such a procedure of little value. Still others have expressed the belief that attempts to prevent circulatory depression in spinal anesthesia by the use of ephedrin were not only without value but fraught with danger. Regarding its clinical application, we can say that if administered in dosage which will maintain only

the original blood pressure, we have seen no untoward effects. From our experimental work definite conclusions can be drawn.

Ephedrin, in dosage of one to two milligram/kilogram, is effective in maintaining the original blood pressure in the dog for one to three hours after cord section or novocaine sensory and motor paralysis as high as the seventh cervical segment. This holds good whether the drug is given intramuscularly or intravenously before induction of anesthesia, or intravenously after the fall of blood pressure. If given intramuscularly after a fall of blood pressure, a latent period for absorption must be expected. When marked circulatory depression is present at the time of intramuscular injection, slow absorption, coupled with anoxemia, may entirely prevent a beneficial result. In a certain number of cases death may supervene before it is systemically absorbed. The effectiveness of this artificial support of blood pressure by drug action is directly dependent upon adequate oxygenation of tissues. We have observed that after long periods of partial anoxemia or following delayed attempts to administer the drug when blood pressure is extremely low (thirty to forty millimeters Hg), it not only fails to produce a response but probably actually damages the heart. That it may be a poor drug to administer following an extended period of extreme circulatory depression from a spinal anesthesia is obvious on the basis of these experiments.

No one questions the potential toxicity of ephedrin. Chen and Meek<sup>5</sup> have shown by electrocardiographic studies that it produces a progressive paralysis of the conduction bundle and ultimately ventricular fibrillation. In the normal man or animal, the dosage which will produce these effects is probably far in excess of the amount required to sustain normal blood pressure following spinal anesthesia. It is reasonable to suppose that a heart already severely injured by anoxemia or organic disease may be only further poisoned by such a substance as ephedrin. It is our belief that the majority of the clinical cases, in which ephedrin has produced injury, fall into this category. It must be admitted furthermore that certain cardiopaths may not well tolerate ephedrin. We have observed that blood pressure supported artificially by ephedrin falls immediately with a relatively slight degree of anoxemia. Inhalation of 100 per cent nitrous oxid or ethylene after high spinal anesthesia with ephedrin, causes an instantaneous drop in blood pressure to a basal level with no indication of the usual asphyxial rise. Moreover, exhibition of oxygen without change in respiratory activity after ephedrin will initiate vagal beats and cause an increase of blood pressure of ten to twenty millimeters of Hg, thus augmenting its desired therapeutic effects.

On the basis of these observations, ephedrin should be administered at a time when tissue oxygenation is good. We believe the effectiveness of this drug to be directly proportional to the oxygen available for use by the cells affected. We have administered ephedrin intravenously to



patients immediately after the maximal drop in blood pressure. It was given symptomatically, using repeated blood pressure and pulse readings as a criterion of dosage. We attempted to bring the pressure only to its preoperative level. The results were entirely satisfactory. If the dosage by this method is such that no hypertension is produced, we believe very little damage to the patient will result. Slow injection and careful control of physical signs are necessary. The inaccessibility of superficial veins after the patient is draped for operation would suggest, however, the continued prophylactic use of ephedrin before induction of anesthesia. The intravenous administration should probably be reserved for emergencies where insufficient dosage has been previously administered. Accompanying attention to oxygenation of the blood is essential.

We wish to lay stress on the many factors involved in such a complex mechanism as high spinal block. Our brief outline of the major factors involved is probably incomplete. Emphasizing one factor to the exclusion of all others in a given complex tends to mislead those whose scrutiny of a subject is superficial. Detailed experimental data upon which this preliminary report is based will be published elsewhere.

#### CONCLUSIONS

1. Cellular oxygen want per se is one of the prime factors in the circulatory depression accompanying spinal anesthesia.

2. Decrease in the oxygen content and increased CO<sub>2</sub> content of the blood is present when blood pressure is low in spinal anesthesia.

3. Under high spinal anesthesia with some degree of intercostal paralysis, the circulatory condition is improved when oxygen-rich air is inhaled.

4. The fall of blood pressure in spinal anesthesia tends to be synchronous with and proportional to the amount of intercostal muscle paralysis produced.

5. Efficient two-phase artificial respiration will maintain normal blood pressure in presence of cord section at the seventh cervical segment or novocain motor and sensory root paralysis of the whole central nervous system.

6. Under high spinal anesthesia, even when blood pressure has been sustained with ephedrin, there is hypersensitivity to anoxemia. No primary asphyxial rise in systolic pressure occurs.

7. Ephedrin in varying dosage tends to maintain normal blood pressure when administered previous to induction of high spinal block.

8. After the blood pressure drop in high spinal anesthesia, ephedrin is less prompt and less effective if administered other than by intravenous injection.

9. When low blood pressure is present from causes other than spinal paralysis, such as extensive hemorrhage, or prolonged anoxemia, ephedrin may fail to restore blood pressure even when given intravenously.

10. High oxygen content of blood augments the beneficial effect of ephedrin.

11. We have not yet seen evidence of circulatory or other damage from ephedrin if the dose is limited to that sufficient to restore normal blood pressure, provided the tissues are adequately oxygenated.

12. Cord section at the fifth thoracic segment or complete novocain paralysis below this point produces no marked change in blood pressure in the normal dog.

13. With our present knowledge, treatment of accidents following spinal anesthesia should consist of two-phase artificial respiration (preferably with oxygen) plus intravenous ephedrin in such dosage that blood pressure is maintained at the preanesthetic level. Existing fluid deficit should of course be made good.

14. Circulatory depression following high spinal anesthesia with intercostal paralysis is much more marked in animals anesthetized with barbital, ethylene, nitrous oxid, or having morphin-scopolamin as a preoperative sedative, than in the unanesthetized animal.

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## LEUKOPENIA—A REVIEW: WITH SPECIAL REFERENCE TO AGRANULOCYTIC ANGINA\*

### PART II

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**BACTERIOLOGY.**—As might be expected, if the hypothesis of a primary leukopenia and secondary invasion is correct, a number of widely differing bacteriological findings have been reported. Some reports of positive blood cultures have clearly been from instances of overwhelming infection and were not cases of agranulocytic angina. A terminal blood stream invasion, however, may occur in this condition. Cultures from

\* Stanley Black Memorial Lecture delivered at Pasadena, January 12, 1931. Part I in August issue, page 82.

Editor's Note.—The annual Stanley P. Black Memorial Lecture at Pasadena is given in memory of the late Stanley P. Black, a graduate of Northwestern, class of 1887, who came to California in 1897. Doctor Black was professor of pathology in the old College of Medicine of the University of California, was health officer of Pasadena for years, and at all times maintained an active interest in public health work. He had much to do with the Certified Milk Commission of Los Angeles. After his death on February 4, 1921, his friends united in getting up a memorial fund, which sponsors the annual Stanley P. Black Memorial Lecture.



the local lesions probably represent the individual's normal throat or gut flora. It is perhaps noteworthy that *B. pyocyaneus* has been found oftener than might be expected and that it is with this organism that Lovett claims to have produced a closely analogous picture in guinea pigs. Cultures from the bone marrow have not been successful.

As might be anticipated, Vincent's organisms have often been found in the ulcers of the tonsils, pharynx, larynx, and gums. Lesions in these locations are usually rapidly invaded by Vincent's organisms and one should be very cautious in attributing any etiologic significance to their presence. No report of invasion of internal organs or bone marrow by these organisms has come to my attention. In the early days of our knowledge of this syndrome much importance was attributed to the organisms of Vincent, but it is now generally believed that they are secondary invaders, although perhaps important in continuing the process. Buch<sup>12</sup> observed that the Vincent's organisms did not appear in the ulcerations until after several days.

*Predisposing Causes.*—The first reports seemed to limit the disease to women; later an occasional male case was discovered, but all statistics point to a greater prevalence in women (Friedemann,<sup>13</sup> twenty-four women; five men). No age is immune; the records include patients from two weeks to sixty-six years of age. No seasonal incidence has appeared, nor has any geographic influence been observed. The condition is apparently not contagious nor familial.

Many of the cases have been under observation by a physician for a variety of troubles at the time of onset, others in perfect health. Perhaps poor general condition predisposes, but also the syndrome may have been more often recognized when the patient had already been under a doctor's care. Many instances have developed following extraction of a tooth because of peridental infection. This was true in the case of one of our nurses. In other cases, tonsillectomy seems to have precipitated the onset. In a man whom I saw in consultation, puncture of the antrum preceded the onset of the throat ulceration by six days.

*Symptoms.*—In the earlier reports, and even in some recent ones, the statement is made that the onset is always sudden with sore throat or the symptoms of a "cold," high fever and severe prostration. When a blood count was taken the characteristic leukopenia was revealed. Other symptoms due to local ulceration may appear as, for example, dysphagia or pain on defecation. Jaundice is often present. The course was supposed to be progressively downward with death occurring in four to eight days, although it was even then appreciated that a few recovered slowly, only to succumb, it was believed, in a relapse.

It is true that this picture is often seen, but we have learned that many far milder cases occur, and that often an individual may have many attacks of varying degrees of mildness or severity.

*Severe Form.*—In the characteristic severe attack, the patient is highly febrile and may exhibit the early evidences of dehydration. The fever curve is not characteristic; fever, in fact, may be trifling or even absent at first, gradually rising to reach 103 or 104 degrees within a day or two. Occasionally a chill occurs. The prostration is often intense and there may be general malaise. Distinct joint pains have been reported, but my experience does not include this observation. With the higher fever, delirium may appear. This systemic picture is not pathognomonic.

Sore throat or tender gums have been the first local complaint in the vast majority of cases. At first there is only an edema or sponginess, but ulceration and necrosis soon follow. The local pain may be considerable; chewing or swallowing may be agonizing, and the regional lymph nodes become enlarged and painful. The spleen and distant lymph nodes may also enlarge. Within two or three days the necrosis becomes more extensive without corresponding increase of pain.

At the height of the attack the heart rate is increased, the blood pressure lowered and the base of the lungs may be congested. The general picture may resemble that of severe septic infection and death seems to result from toxemia. When improvement occurs, it will show itself by lowered fever, lessened toxicity, and the appearance of granular leukocytes in the blood before any distinct change for the better takes place in the local lesions. These are slow to heal; large necrotic sloughs finally becoming loosened and removable. Bits of necrotic bone may continue to be discharged when the ulcers have involved the alveolus. Convalescence is slow both as to the general strength, the local healing, and the restoration of the white cell count to normal. Remissions and second attacks are common.

*Mild Form.*—As I have said we now recognize the occurrence of attacks far milder than this, and yet in their character justifying our belief that they belong in the same group. A strong argument in favor of this view is the fact that these mild attacks occur as a rule in individuals who have had one or more of the severer forms.

One cannot be sure that all patients who have severe attacks also have mild recurrences. The histories of many fail to reveal any incidents which might be so interpreted, but usually this feature has not been looked for. However, the nurse whose case I have mentioned has not had any recurrences although we have watched for them most carefully. On the other hand, we have a woman in the hospital at this time who has had one or two severe attacks and several mild or abortive ones. These latter have been characterized by a feeling of malaise, a sponginess of the gums, little or no fever, but a distinct drop in the total white count due to disappearance of granular forms.

Her history is interesting. The first proved attack was in March 1930 in our hospital, but her description of a "sore throat" in 1928 and of four similar recurrences in 1929 make me be-



lieve that these were agranulocytic in nature. In her first admission she presented a typical picture in every way except that the blood platelets were reduced as well as the leukocytes. She recovered and left the hospital, after a number of normal white cell counts had been obtained. Twelve days later she was back in another attack; on this visit the lowest total count was 600 with no granular leukocytes seen in a long search. When her local lesions had healed and the count reached 5700 a tooth was extracted without local reaction, but two days later, when we were getting our nerve up to have tonsillectomy performed, the gums became spongy and in five days the total count had fallen to 2800. Operation was postponed and in four days the gums were well and the count 5300. Tonsillectomy has now been performed with a prompt rise in white cells to over 7000, a level never before recorded in her case.

Similarly a male case studied by me in Philadelphia and by Minot in Boston has had many trifling abortive attacks, without distinct local lesions but with a coincident fall in white cell count.

Such evidence as this has very decidedly altered the earlier views and has forced us to start building up a far different concept of the nature of the syndrome. The frequent repetition of attacks of varying severity, commencing with leukopenia and only secondarily and not always progressing to severe systemic reaction and local necroses contradicts the hypothesis that the leukopenia of agranulocytic angina results from an overwhelming anginal infection.

*Recurrent Agranulocytosis.*—Finally a case report by Rutledge, Hansen-Prüss, and W. S. Thayer<sup>14</sup> of Johns Hopkins seems to carry our changing conception of the disease one step further. Their case is reported under the title "Recurrent Agranulocytosis" which is used instead of agranulocytic angina because the basic condition, a cyclic leukopenia, is not always accompanied by angina. Their patient, now a man of twenty years of age, presents, to quote their words, "a remarkable instance of cyclic, agranulocytic angina associated with fever and constitutional symptoms but without anemia, beginning at the age of two and one-half months, and recurring at intervals of approximately three weeks during the entire life of a man twenty years of age."

This very remarkable case is unique, but two of the patients whom I have seen, on being carefully questioned described what might have been repeated earlier milder attacks. Probably similar cases will be discovered.

#### COMMENT

As a result of our growing body of experience, I think you will agree that certain statements about agranulocytic angina seem justified:

1. The evidence is sufficient for us to conclude that the leukopenia precedes the ulceration, fever, or other systemic manifestations.

2. This leukopenia is not merely a manifestation of one of the well-recognized causes of

leukopenia such as that following arsphenamin, or that occurring in overwhelming sepsis.

3. The angina and other ulcerations are secondary and merely represent the invasion by an opportunist flora of a poorly defended body border. Such ulcerations do not always occur. These assumptions explain the nonspecificity of the flora, and the likelihood of local invasion by Vincent's organism. Possibly the ulcerations once established tend to prolong and intensify the leukopenia.

4. For the present, we must group together cases and attacks of very varying severity; at the one end of the scale such a case as that reported from Johns Hopkins and at the other end, fulminant cases dying in what appears to be a first attack.

5. No cause for the apparently spontaneous leukopenia has been discovered. It must be such as to permit of its periodic action over a prolonged period of otherwise normal health.

6. It seems theoretically likely that those attacks which are apparently precipitated by a mucous membrane trauma have occurred in an individual subject to periodic leukopenia and happening to be in such a period at the time of the exciting incident.

In other words, angina may occur spontaneously or following mucous membrane trauma during any period of leukopenia. There is nothing, however, about such a leukopenic angina to suggest the cause of the leukopenia. In some instances a recognized cause of leukopenia is lacking and we are forced to employ some such term as idiopathic leukopenia; some of these exhibit a cyclical or periodic tendency. Leukopenia of this type when accompanied by angina and systemic reactions forms the syndrome entitled agranulocytic angina.

Such a concept finds a startling analogy in purpura hemorrhagica. Here also is a failure of one function of the bone marrow—sometimes the platelet forming function, secondary to a clearly recognized cause, sometimes forming one part of the triad of aplastic anemia, but in still other instances continuing throughout a patient's life with, however, only intermittent purpura. The further one carries this analogy the more parallel the evidence seems to be.

We lack altogether any knowledge of the cause which produces recurrent agranulocytosis. What is the unknown factor, the x, in these patients which renders them liable to spontaneous agranulocytic angina, which makes it dangerous for them to have a dental extraction, and which perhaps makes them more likely to develop dangerous leukopenia after such an incident as an injection of arsphenamin?

Studying the cases I have seen for some common factor which might be the unknown x of our problem, I have been struck by the presence of allergy in each. This may, of course, be a mere coincidence, but this is unlikely for allergy occurs in only 10 per cent of the race. I fully realize that we are in a period when it is the fashion to explain everything upon an allergic basis; diges-



tive troubles, migraine, epilepsy, and many others have recently been added to the list of allergic conditions. And yet I am sufficiently impressed by the evidence to suggest that agranulocytic angina may have allergy as the background—not of the angina directly, but of the leukopenia which permits the angina. The hypothesis which forms in my mind would relate the recurrence of leukopenia to that seen upon the entrance of a foreign protein into the body.

That there is a rhythm of the total white cell count has been known for years; Türk believed the daily low point came early in the morning with a drop to about 5000 due to a reduced number of neutrophils. Sabin<sup>15</sup> and her colleagues found that the daily variation of the white count was such that the highest count was usually twice the lowest.

In recurrent leukopenia we have a periodic or occasional excessive lowering of the leukocytes under some influence which might conceivably be allergic. The literature contains no supporting evidence for this hypothesis. Kopelowitz<sup>16</sup> does suggest that there must be a factor, some idiosyncrasy or allergy, or possibly endocrine factor that renders the hematopoietic system susceptible to a noxious agent. He does not report any evidence to support his view.

The first case in which the presence of allergy was brought to my attention was one which will be reported by Dr. Mackinnon Ellis. The allergic state came out clearly in her history, but only after our interest was attracted by a violent urticaria which followed upon a transfusion from a donor who had recently eaten of a food to which the patient was sensitive. It is further interesting that the white count, which had been rising, fell back sharply to a very low figure following this reaction.

Another patient has hay fever and migraine which has been attributed to food allergy. Another was proved food sensitive.

Dr. Joseph M. Hayman, Jr., of the Lakeside Hospital, Cleveland, knowing of my interest in this hypothesis, has sent me a most interesting record of a woman who had entered the hospital on several occasions because of severe asthma. She was sensitive to a number of foods and always had an eosinophilia. She underwent an attack of fever, red spongy gums, and severe leukopenia. Urticaria followed transfusion in her case also. Eosinophilia was present in Thayer's case.

This evidence is, of course, far from sufficient for any dogmatic claims, but it is certainly suggestive and the hypothesis seems tenable. We know of a leukopenia from foreign protein, we know of other allergic manifestations which at times are periodic and recurrent. The best we can do at present is to watch for further evidence.

#### TREATMENT

*Treatment of the Angina.*—The treatment of agranulocytic angina has varied somewhat, according to the views held concerning the nature of the condition. The earlier reports all record efforts directed at lessening the infection both

locally in the ulcerations, and systemically when a blood stream infection was present or suspected. Arsphenamin has been very widely administered without any apparent beneficial result. It is certainly unwise to employ an agent which is in itself a cause of leukopenia. The use of arsphenamin has arisen from a belief that the Vincent's organisms found in anginal lesions were important and required treatment.

Undoubtedly the local lesions require attention, but I doubt if it matters so much what measures are used so long as sloughs are cleaned away and the parts cleansed at frequent intervals. Perhaps the local use of arsphenamin is justifiable, and Babbitt<sup>17</sup> is enthusiastic over the results with 25 per cent trichloroacetic acid and 10 per cent neoarsphenamin in glycerin.

*Treatment of the Leukopenia.*—Where the cause of a leukopenia is known it must be removed if possible and repeated transfusions employed to tide over the interval until the patient's bone marrow is given a chance to reassume its function. Where the cause is not known, as in agranulocytic angina, transfusion seems to offer the best hope. It may be argued that the number of leukocytes supplied is too small to be very helpful. It is true that mathematically the effect on the total count of the patient is not striking. A transfusion of 500 cubic centimeters of blood with 8000 white cells per cubic millimeter only contains 400,000,000 leukocytes which are rapidly distributed and perhaps destroyed throughout the host's circulation and tissues. In one very severe attack not a single granular leukocyte was seen in spite of transfusions sufficient to supply 2000 per cubic millimeter of the patient's blood. Nevertheless such transfusions can be repeated, if necessary, daily, and I believe do accomplish good. They should be large transfusions, given daily, from donors who have been carefully typed and also who have fasted for a number of hours. Plethora, unless extreme, is no contraindication; when plethora is marked, venesection may precede the transfusion.

No satisfactory method of transfusing leukocytes alone has come to my attention, nor any beneficial results from any leukocytic extract.

Even if the leukocytes of a transfusion are destroyed, it is possible that the products from their death form the normal and perhaps most potent stimulus to the bone marrow for the production of new cells. In the final analysis it is a resumption of leukocyte formation which must occur if the patient is to recover. If transfusions should help to bring this about, even indirectly, they would be more valuable than supplying a few cells to function during the necessarily short period.

An argument used against transfusion in anemia is sometimes applied here, that by supplying the lacking elements the bone marrow loses some of the keen stimulus to resume its activity. A good example of this point of view is offered by Minot's treating a case of agranulocytic angina by free bleeding, hoping thus to stimulate the bone marrow. The patient recovered. Our pa-



tient who did so well after tonsillectomy had quite a severe hemorrhage a few hours after returning to the ward; possibly it was the hemorrhage rather than the removal of the tonsils which raised her leukocyte count.

The various liver extracts seem useless, and no chemical has any specific effect. On the theory that while heavy exposures of x-ray depress the bone marrow, small doses are stimulating, Friedemann reported using minimal radiation of the long bones with miraculously prompt benefit. A later report by Friedemann and Elkeles<sup>18</sup> does not sound so optimistic, nor has the treatment been favorably reported upon by others, although tried in many cases. Of the four patients on whom I have seen it tried, none experienced the prompt feeling of well-being nor did young granular cells appear in the blood, as it has been claimed.

We must learn the underlying cause of the leukopenia which is the basis of so-called agranulocytic angina, in order that treatment may be directed not only at the local ulcerations, at the need of circulating leukocytes and at the dormant marrow, but also at this underlying cause whether it prove to be allergy or some still unsuspected factor.

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## THE MENTAL HYGIENE SURVEY OF CALIFORNIA\*

### PART I

By FREDERICK H. ALLEN, M. D.

Philadelphia

AND

GLENN MYERS, M. D.

Los Angeles

LONG ago mental disorders were regarded with the same misunderstanding that gave rise to myths. Eventually came the recognition of the major psychotic disorders as medical problems. Until the twentieth century, however, medical principles were applied almost solely to the more apparent adult psychotic and psychoneurotic disorders. Then came the knowledge that these disorders are the outgrowth of conditions existent in the childhood of the subjects and might have been prevented had proper approach been made. Preventive mental endeavor so became concentrated in the child rather than in the adult. Now

it is further recognized that mental hygiene work cannot be complete without combined work with the child, the persons with whom the child comes into contact and the other environmental factors. Treatment of the child (or of the adult) cannot be detached from a total situation involving home, parents, brothers and sisters, school, neighborhood and companions. Psychotherapy must be applied to persons and psychiatric social therapy to situations.

#### MENTAL HYGIENE PROBLEMS CONFRONT ALL PHYSICIANS

Every practitioner of medicine, no matter what his specialty, is confronted with a great number of mental hygiene problems. His ability to meet such problems depends upon his understanding of them through education and practical experience. His education usually has been wholly inadequate ("only seventeen of the sixty-four four-year medical schools in the United States require of their students as much as one hundred hours of psychiatric study"<sup>1</sup>) and he is prone to develop erroneous concepts through unguided experience. Understanding of the psychotic or psychoneurotic adult cannot be complete without understanding of the child and the situational influences that tend to the development of deviations from the normal personality. Such understanding is to be had only through special work with children such as, for example, has been developed in child-guidance clinics with the characteristic personnel set-up centered around psychiatrist, psychologist, and psychiatric social worker. Professional education is thus of utmost importance, in order that the medical practitioner not only shall treat his patients wisely but that he shall disseminate practical information and advice to the public personally or through writing. Similar education is needed by public health officers, nurses, social workers, teachers, administrators, recreation directors, policemen, probation officers, judges and practicing lawyers. Constructive education is the backbone of the mental hygiene approach.

#### UNITED STATES STATISTICS ON HOSPITALS FOR THE MENTALLY ILL

Mental health has been defined as "the adjustment of individuals to themselves and to the world at large with a maximum of effectiveness, satisfactions, cheerfulness and socially considerate behavior, and the ability to face and accept the realities of life."<sup>2</sup> Obviously the field of mental hygiene is a vast one. In federal, state, county, city, and other hospitals for nervous and mental patients in the United States, there was in the year 1930 an average daily census of 415,042 patients, representing a net increase over the year 1929 of 19,635. In total capacity, the 561 nervous and mental hospitals exceeded the 4302 general hospitals by 66,310 beds.<sup>1</sup> It has been found that there are, in mental hospitals, 250 patients over fifteen years of age for every 100,000 of the general population; 80 (per 100,000 population) are admitted each year, 70 of these for the first time. It has been estimated that "the

\* Read before the Neuropsychiatry Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

Editor's Note.—See, also, a preliminary report on the California State Mental Hygiene Survey in December 1930 California and Western Medicine, page 872.



chances of persons, living in states with good facilities, being committed to hospitals for the mentally ill in the course of their lifetimes, are about one in twenty. The chances of developing a psychosis or a severely incapacitating neurosis (whether the patient is sent to hospital or not) are about one in ten."<sup>2</sup> In addition, there are habit problems, socially objectionable behavior and personality problems preventing the individual from achieving healthy personality organization that will permit him to be satisfied and satisfying in social relationships. Allied to such problems are delinquency, crime, poverty and dependency, with their enormous costs.

#### THE 1930 MENTAL HYGIENE SURVEY OF CALIFORNIA

In the summer of 1930, a mental hygiene survey of the State of California was made under the direction of Frederick H. Allen, M.D. A preliminary report of the survey has been published<sup>3</sup> but the completed report is not yet in print. With the permission of Doctor Allen and with due credit to him for material used, as much of his findings and recommendations follow as is possible to include in a paper of this length. It is regretted that only brief abstracts of the voluminous report can be here presented. It should be mentioned that criticism, where it appears, is meant to be constructive in character and applied to conditions generally recognized and understood by the personnel of the state institutions who have, in most instances, made the effort to bring about betterment of the conditions criticized.

#### CALIFORNIA FACILITIES FOR STUDY, CARE, AND TREATMENT OF THE MENTALLY SICK

In 1930, there were approximately 18,000 mental patients in the state, private and other hospitals of California. The way that they are supervised, cared for and treated is a mental hygiene problem of great importance. The nature of mental conditions frequently requires that hospital care shall be enforced through legal procedure. The procedure of commitment should be such as to minimize the legal compulsory aspect and to emphasize the medical treatment of the patient as the major consideration.

*Present Commitment Law in California.*—The present commitment law in California is based upon the assumption that a person with mental disorder, to be committable, must be dangerous to himself and to the property and life of others. This concept was formulated when the law was passed in 1864 and this part of the law has never been changed. The medical aspect of commitment which emphasizes hospitalization as treatment, is given little consideration. Commitment is mainly a legal procedure to provide custody for the patient and safety for the community. A complaint of insanity is made and a warrant is issued by a magistrate. The sheriff takes the patient into custody and detains him in a "suitable place." Each county has used its own judgment

concerning the type of quarters to be regarded as suitable, with the result that all kinds of conditions exist, varying from good hospital care to the very worst of jail conditions. In some counties there is overlapping of such facilities. In 1929, 890 insanity warrants were issued in thirty counties that still use county jails for detention of mental patients, and a large proportion of these patients were held in jail pending legal disposition. In 1929, 1646 mental patients were disposed of in seventeen counties that have transferred the jail quarters to the county hospitals. Thus forty-seven of the fifty-eight California counties provided either jails or jail-like facilities for the detention of mental patients pending further disposition. In 1929, eleven counties with 3865 insanity complaints appear to have approached this problem from a medical point of view. Six of them not only provided good hospital facilities, but also facilities for examination and temporary treatment. All patients, nevertheless, were arraigned before a superior court judge who set the time for the trial, telling the patient that he has the right to have counsel and to produce witnesses. The law provides that the hearing shall be held in "open court" and the patient must be present if physically able. The complaining witnesses must state before him the reasons for regarding him to be "insane." Two physicians must be present to hear the evidence and to examine the patient. Examination is usually made just preceding the hearing or at the time of the hearing. Only four counties have their own staff of visiting psychiatrists who examine all patients independently of the court. In many counties, including some of the larger cities, the best that can be said of the examination is that it gives the proceeding a slight medical coloring. If commitment is decided upon, the patient is turned back to the sheriff for transportation to the hospital. It is still a common procedure to handcuff patients while they are en route to the state hospital. Of the last fifty admissions to one state hospital, it was found that 46 per cent came to the hospital under some form of physical restraint. Steel cuffs and leather belts were used in most cases. Practically all of these patients quickly settled into the routine of the hospital. It is thus clear that restraint is essential only when the care is unintelligent. The unwise procedure previous to hospitalization too frequently creates excitement and makes restraint necessary. The law makes illegal the commitment of a patient from his own home, although many counties practice this procedure. It makes no provision for temporary commitment. It provides for jury trials on demand by a patient and in those criminal cases in which the plea is brought "not guilty by reason of insanity." The procedure provides influences detrimental to the patient's best interests and detrimental to the recovery of his normal mental condition. It helps to maintain an archaic, erroneous and unscientific attitude concerning the nature of mental disease and prevents the building up of a better conception of mental illness. The law was originally designed to prevent unwise hospitalization, but



better safeguards are in use. State hospital staffs are adequately able to determine what patients do not need to be in mental hospitals and authority is vested in the superintendents to return such persons to the community at once. The medical profession can be trusted to exercise this function with discretion. There must be some legal formality to the commitment procedure, inasmuch as the patient is deprived of his liberty, property rights are involved and detention by force is sometimes indicated. Other states have been able to make these legal formalities of commitment extremely simple. In the present commitment procedure the judge can, if he chooses, reject the opinions of the examining physicians and he has been known to do so. The function of the judge in a commitment procedure should consist in no more than the mere formality necessary from the legal standpoint, including the legal protection of the physicians signing the commitment orders.

*Suggested Changes for a New California Commitment Law.*—The following changes are suggested for a new commitment law:

1. To permit a relative to make application for mental examination of a person thought to be mentally ill. This application should be signed by the local health officer, who should be responsible to see that examination is made.

2. To have examination made by two qualified physicians, either at the patient's home or at a suitable place provided by the county. If detention is necessary, it should be in or connected with a hospital and not in jail. Every man or woman licensed to practice medicine in California, who has practiced for five years, should be qualified to sign commitment papers.

3. Papers to be presented to a magistrate or superior court judge, to be sworn to and recorded. The patient should not be required to appear before a judge or in court unless he demands it.

4. Immediate transportation from the patient's own home to a mental hospital to be made possible. A corps of trained attendants from the state hospitals and paid by the state should be responsible for this duty.

5. Provision to be made by the state for the establishment of receiving hospitals at various convenient points to allow for reception and examination of patients from the smaller counties.

6. Temporary commitment to any approved psychopathic ward to be made possible. Such commitment should be authorized on the certificate of one qualified physician, to run for a period of ten days. This would simplify the machinery of getting immediate hospital care in the case of urgency.

7. Every patient to have the right to demand a court hearing before a board of experts appointed by the court.

8. In the case of the relatively small percentage of dangerous and violent patients pending hospitalization, it should be possible to have the assistance of local peace officers.

9. Commitment to be made possible to a few specially licensed private hospitals.

*Present Psychopathic Parole Act.*—In 1927, the attempt was made to introduce more elasticity into the commitment procedure by the passage of the Psychopathic Parole Act. This provides for the examination of persons mentally sick and bordering upon insanity, but not dangerously insane. Such persons are placed in charge of the psychopathic parole officer and are allowed to remain at home, or the court can direct that they be placed in suitable homes or sanatoria subject to the supervision of the psychopathic parole officer. This Act seems to emphasize the legal fallacy about insanity. It attempts to restate the legal attitude that a mental patient, to be committable, must be dangerous. If he is not dangerous, then he is not legally insane and must be called mentally sick. It is a curious attempt on the part of the law to bring the provisions more in keeping with the medical attitude toward mental patients. It has, however, allowed the courts in two counties to keep certain patients under observation without commitment to a state hospital. As long as the law allows commitment only to the state institutions, this additional provision has helped. If the present provisions of the Psychopathic Parole Act are continued, this work should be in charge of persons who have definite qualifications which should be written into the Act and the work should be under good medical supervision.

*Hospital Care of Mental Patients in California.* Only one private general hospital in the state makes any provision for the treatment of mental patients. Some 627 patients were cared for in the last fiscal year. All were maintained on a voluntary basis. They were carefully studied by the psychiatric staff, assisted by the senior students of a medical school. The ward is used essentially for teaching purposes and the histories obtained are quite complete. It is in charge of a graduate nurse, and pupil nurses rotate through the service. This ward demonstrates the feasibility and necessity of having a ward for mental patients as a regular part of a general hospital. It is enabling a medical school to teach the subject of psychiatry adequately. There is a marked scarcity of general hospital facilities for mental patients in California. More large general hospitals should equip a ward for such patients and should attach a psychiatrist to their staff. The treatment facilities of a hospital cannot be regarded as complete until this gap is filled.

Four county hospitals do something more than keep mental patients pending commitment. Only one county hospital has developed a psychopathic department which has no relation to the commitment procedure. Most of the patients are admitted on a voluntary basis and are kept for twelve days. Diagnosis rather than treatment is emphasized as the major function.

Better facilities in counties are needed for the care of those aged persons who require only good



custodial care. Such facilities should be developed at county farms and should be used only for such persons and not for those patients in need of treatment. Smaller counties should join together on this project.

The state hospitals for the mentally sick are charged with the medical and social responsibility for a large number of sick persons, both while they are patients in the hospitals and while they are readjusting to the normal life in the community. The work of these hospitals forms an important chapter in the mental hygiene program of any state. California's first state hospital was established in 1860 and, continuously since then, the state has not deviated from the policy of complete state care, although one large county under the operation of the Psychopathic Parole Act has cared for large numbers of patients without commitment. California has six hospitals devoted entirely to the care of mentally sick patients. On June 30, 1930, they were caring for 14,906 patients; and 1293 were on parole or otherwise absent. This gives a ratio of 261 state hospital patients to 100,000 general population. During 1929, 5752 insanity complaints were issued and 4540 patients were admitted to these hospitals—a ratio of 83 patients to 100,000 general population. In the last fifteen years, California has almost doubled in general population, but the number of patients in state hospitals has not grown proportionately. The drop in ratio does not mean that mental disease is decreasing; it probably means that a building program has not been maintained to meet the needs of a rapidly growing state.

#### RECOMMENDATIONS PROPOSED TO INCREASE EFFICIENCY OF STATE HOSPITALS

A few of the recommendations follow, meant to better equip the state hospitals for their important clinical responsibilities: Expansion of capacity to 19,000 beds within five years, with replacement of antiquated buildings unsuitable for the care of sick persons; financial support to provide a per capita allowance of at least one dollar a day (now about sixty-nine cents a day); conversion of two state hospitals, proximate respectively to Los Angeles and San Francisco, into acute psychopathic hospitals; better record work through larger medical staff, more use of trained social workers, more stenographic assistance and statistical service from the Department of Institutions. Each hospital should have: a reception service to maintain continuous treatment of approximately 10 per cent of the total hospital population; a well trained clinical director, with full time for clinical activities; at least one physician to 200 patients (now 1 to 304); a trained pathologist; at least one full-time dentist to every 1500 patients; a chief physiotherapist with four to six assistants; the application of a well-planned occupational therapy program to every patient capable of being benefited by activity; a recreational director; a trained psychiatric nurse with graduate standing in charge of nursing and at-

tendant personnel and responsible for their assignments; one attendant to every nine patients (now 1 to 11.3).<sup>†</sup> Increase in salaries is indicated all down the line.

#### "CRIMINAL INSANE" AND DRUG PATIENTS

The term "criminal insane" has little validity, as the study indicates that a large proportion of these patients showed evidence of mental disturbance before the criminal act was committed. Better psychiatric facilities in community and court would effect the commitment to hospital of more of these patients before the commission of a criminal act. Custodial facilities in one of the state hospitals will be expanded to care for 300 of these patients, according to present building plans. These additional quarters should permit transfer of custodial patients from the other hospitals and should entirely relieve San Quentin prison of those mental patients now being kept in the so-called "crazy alley." This is the top gallery of one of the cell blocks, which has been set aside for the housing of this group. These men do no work, but are kept away from contact with the rest of the prison population and spend a large part of their time in their cells. These psychotic patients are only the more obvious ones. Mixed in with the 7000 men in San Quentin and Folsom prisons are large numbers—no one knows how many—who are definitely insane.

The drug colony needs a great deal more equipment both for treatment and for occupational therapy. This hospital should have an adequate social service staff both for assistance in obtaining histories and for supervision of patients on parole.

(To be continued)

#### PARALYSIS—FROM SPURIOUS JAMAICA GINGER EXTRACT\*

##### REPORT ON LOS ANGELES COUNTY OUTBREAK

By FRANK G. CRANDALL, M. D.  
*Whittier, California*

BEFORE January 15, 1931, the disease or condition known as "jake paralysis" was unknown in California except for the reports of an outbreak of Jamaica ginger paralysis which occurred last year in the middle western and southern states. Therefore, nothing of the character of "jake paralysis" was suspected by a physician in Whittier when, on January 18, a man aged sixty, with symptoms of nausea and vomiting, abdominal cramps and a severe diarrhea, was visited.

##### REPORT OF CASE

The patient was sent into the local hospital. Laboratory tests for amebic and bacillary dysentery were

<sup>†</sup> The budget passed by the 1931 legislature provides for the biennium, a ratio of one attendant to ten patients.

\* From the health department of the county of Los Angeles.

\* For other comment on "jake paralysis," see *California and Western Medicine*, November 1930, page 823, and May 1931, page 378.



negative. Blood count was normal. Blood Wassermann was negative. Temperature was normal. In three days the patient had recovered sufficiently to return home. His gastro-intestinal symptoms had all cleared up, but in about ten days he began to develop soreness in the muscles of the calves of his legs and stiffness and numbness in his toe. This was rapidly followed by difficulty in walking and bilateral foot drop. Upon attempting to walk, the patient was forced to hold on to some object for support and had a characteristic flail foot gait.

His physician reported the case to the writer as a suspected poliomyelitis. After a careful examination and consultation with Dr. George H. Roth of the health department of the county of Los Angeles, a diagnosis of "jake paralysis" was made.

This patient, within a few days, became unable to use his fingers, especially the thumb and forefinger. Later, he developed a bilateral wrist drop and the fingers were drawn up from the loss of function of the extensor group of muscles. He was sent to the Los Angeles County General Hospital and has been confined to his bed since that time. He is not able to walk or stand up or even dress or feed himself.

#### COMMENT

To the writer's knowledge, this was the first case of "jake paralysis" diagnosed and recognized in the recent Los Angeles outbreak. An interesting point in this case was that at first this "jake" victim denied that he had used any alcoholic beverage, but after continued questioning, admitted that he had drunk the contents of two bottles containing two ounces each of Jamaica ginger on January 18. He claimed he did not know the source of his supply and he had destroyed the bottles. The writer noticed a new 1931 calendar on the wall of the room, put out by a local drug store and accused the man of buying it there. He confessed that he had been buying it from this store for years. As a result of this information, the writer, assisted by Mr. Frank Foreman of the county health department, located twelve other "jake" victims in Whittier the next day—nine men and three women—and a week later two more men, making a total of fifteen patients from the city of Whittier. The druggist from whom they had all purchased their supply had destroyed the remainder of his stock so that no samples were available for analysis. However, enough was found in the bottles in the homes of some of the victims to show that it was below the standard of the United States Pharmacopeia, although the presence of the adulterant, tri-ortho-cresyl-phosphate, could not be demonstrated.

The case described above is a typical "jake paralysis" of the severe type. The writer has seen and studied about seventy-five cases during our outbreak and practically all of them showed the same symptoms with the exception that some did not develop the acute gastro-intestinal upset as in this patient and some of them were not so badly paralyzed. The milder cases were in patients who showed a slight improvement insofar as their hands were concerned, and some of the victims seemed to think their feet have improved. But, from our observation, the paralysis is permanent and what really occurs is that the individual learns

to use, and develops, other muscles to take the place of those paralyzed, the paralysis being due to the degeneration of the nerves supplying the muscles. The patient thinks because he can use his hands and feet better, as time goes on, that he is gradually recovering.

By order of Dr. J. L. Pomeroy, Los Angeles County Health Officer, a thorough investigation was made of these cases and it was found that all of them could be traced to one source, namely a brand labelled "Superior Brand" fluid extract of ginger, United States Pharmacopeia, which had been bottled, labeled and distributed throughout this territory by the California Extract Company, located at 443 South San Pedro Street, Los Angeles, and which was owned and operated by Jacob Rosenbloom, his wife and two sons. Later investigation showed that all the cases at the National Soldiers' Home in Sawtelle, thirty-five in number, as well as all the cases occurring in Los Angeles City, could be traced to this brand, and one other, known as "Superb," which came from the same original source, namely, a firm by the name of Jordan Brothers, New York City. Rosenbloom purchased his supply from this firm in barrel lots and bottled and labeled it in his Los Angeles plant and distributed it in two-ounce bottles in gross lots to the retail drug stores.

#### UNITED STATES PUBLIC HEALTH SERVICE INVESTIGATIONS

We were very fortunate in having Dr. Maurice I. Smith, Senior Pharmacologist of the United States Public Health Service from Washington, D. C., visit our department the last week in February. Doctor Smith, in 1930, discovered the cause of "jake paralysis" and has carried on an extensive investigation along this line which has been reported in the *United States Public Health Reports*. With the writer, Doctor Smith visited a large number of the "jake paralysis" victims and confirmed the diagnosis. The county laboratory was turned over to Doctor Smith while he was here, and chemical and pharmacological tests were made on samples of fluid extract of Jamaica ginger which showed the presence of tri-ortho-cresyl-phosphate in some of the samples.

#### OFFICIAL ACTION TAKEN IN LOS ANGELES COUNTY

Immediately following our investigation in Whittier, every drug store within the county health department's jurisdiction was visited and a check up made as to their supply of Jamaica ginger. All "Superior Brand" ginger was quarantined. Only one drug store was found in the city of Whittier selling this brand. That druggist had sold forty bottles of a shipment of one gross which he received on January 17. The contents of forty bottles of this stock supplied fifteen paralysis patients.

The writer filed complaints, under the California State Pure Drugs Law, against E. J. Lewis, proprietor of the Greenleaf Pharmacy in Whittier, for selling mislabeled and misbranded drugs.

He pleaded guilty in Justice Court in Whittier on March 4, 1931, and was fined \$150. Another druggist, H. A. Ball of Santa Fe Springs, pleaded guilty and was fined \$25, as no known cases of paralysis developed from the sales he made.

Jacob Rosenbloom was taken into Municipal Court by the writer, and with the coöperation of the Los Angeles City Prosecutor's Office, was found guilty by a jury of eleven women and one man and sentenced by Judge Ellis A. Eagan on May 16 to one hundred and eighty days in jail and \$500 fine, which is the maximum penalty under the law. About fifteen other charges are pending against him in addition to the Federal charge of conspiracy to evade the National Prohibition Act. Up to the date of this paper, May 21, 1931, the only prosecutions which have been made in this state against those selling adulterated fluid extract of ginger, have been made by the Los Angeles County Health Department and convictions have been secured in each case.

Dr. J. L. Pomeroy, with the coöperation of the district attorney's office and State Senator McKinley, succeeded in having this year's state legislature pass a bill requiring a physician's prescription to obtain fluid extract of ginger from a drug store. So far as is known, this is the first and only legislation which has been passed by any state to protect its citizens against "jake paralysis."

The recent outbreak of "jake paralysis" may be said to be an end result of so-called prohibition. Almost all of these cases give a history of having used liquor for many years. When the Volstead Act became a law and they were deprived of their usual toddy or daily drink of whisky, they could not afford to pay bootleggers' prices or buy prescription whisky, so they bought their fluid extract of jamaica ginger for fifty cents a bottle. It was the poor man's way of getting a drink of liquor. As one of these victims told the writer, he was afraid of bootleg liquor but thought it would be safe to buy fluid extract of jamaica ginger, containing 85 per cent alcohol and with the United States Pharmacopeia stamp on the label, from the druggist from whom he had bought drugs for many years. Little did he realize that the bootleggers had taken advantage of the demand for this old household remedy as an alcoholic beverage, and had adulterated it and poisoned it with a ginger substitute, tri-ortho-cresylphosphate, in order to make greater money profits. One woman victim had purchased the jamaica ginger extract for stomach cramps and is paralyzed as a result!

Los Angeles County will now have as county charges most of these two hundred "jake" victims for the rest of their lives because they couldn't get along without some form of alcoholic stimulant, even if we do have the Eighteenth Amendment. It needs no great stretch of the imagination to calculate the outlay of the thousands and thousands of dollars which in the course of years the taxpayers will thus be called upon to pay in the care of these now public dependents.

Whittier Health District.

## POSTURAL TENSIONS FOR NORMAL AND ABNORMAL HUMAN BEHAVIOR—THEIR SIGNIFICANCE\*

### PART I

By E. J. KEMPF, M. D.  
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DISCUSSION by H. G. Mehrrens, M.D., San Francisco;  
Walter F. Schaller, M.D., San Francisco.

THE significance of postural tensions of unstriped and striped neuromuscular reflexes for human behavior is too wide a subject to be covered amply in a single paper.

### SCOPE OF THIS PAPER

It is necessary to limit this presentation to the more outstanding functions, applying them to normal and abnormal behavior.

First, we need to abandon the old sterile ways of approaching the riddle of human behavior. We avoid the dilemmas which follow from assuming a psychophysical parallelism; we do not accept the condensed hypothesis of the neurologists who claim that the brain is the organ of the mind; neither do we use the ancient academic theory that there is a mind functioning in reciprocal coöperation with the body. None of these hypotheses gives the medical sciences a way of correlating man's mentation, emotion, and physiology, so that the physician can intelligently treat his cases wherein an organic or functional pathology makes for abnormal behavior, or abnormal behavior produces functional or organic pathology.

Moreover, we do not care to reduce such functional attributes of the personality as the ego or mentation to physiochemical processes within the nerve cell, for such a process would be like trying to explain literature in terms of letters of the alphabet.

We cannot use Freud's theory of a libido principle because it assumes that the libido principle becomes mysteriously converted into

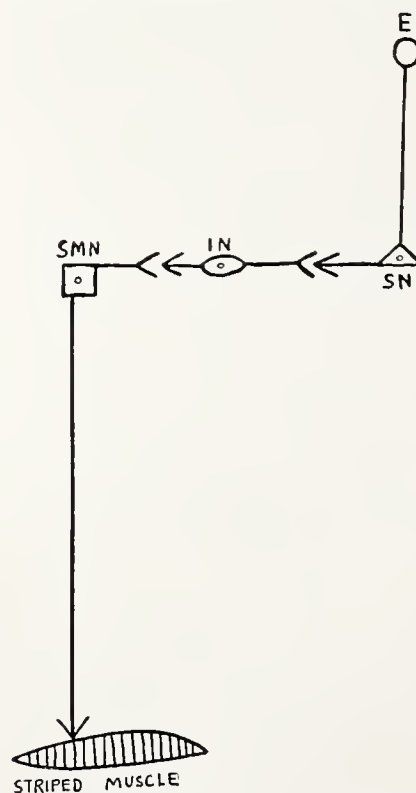


Diagram 1.—Old concept of stimulus and response of motor nerve and muscle without concept of muscle tonus. E, exteroceptor; SN, sensory neurone; IN, intercalated neurone; SMN, somatic motor neurone.

\* Read before the Neuropsychiatry Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



physical symptoms. It skips over the biological riddle created by a libidorganic version of the ancient mind-body interaction theory.

The biologic evolution of man from lower animal forms to the present level requires that we develop a biologic comprehension which is capable of explaining all of man's personal attributes. We use a new conception of the sensorimotor reflex circuit with which we may explain the principle of postural tensions of the striped and unstriped muscular systems which underlie normal and abnormal behavior.

The old concept of a reflex arc, which seems to have been theoretically developed on the idea of stimulus and response, without adequate physiological data, has proven wholly useless for building up an understanding of human behavior which has any clinical value.

#### COMMENT ON DIAGRAMS

In the Diagram 1, illustrating the old concept of stimulus and response, we see human behavior amounting to little more than a living organism reacting like a typewriter to an endless stream of environmental stimuli.

Diagram 2 illustrates in a simplified form the principle of the new concept of a reflex sensorimotor circuit, in which the muscle cell is shown in continuous tonus with its motor nerve cell, so that motor impulses to the muscle cell from the motor nerves not only stimulate its contractions, but also its postural tonus; and the proprioceptive stimuli originating from the working muscle cell finally restimulate its own motor nerve through its proprioceptive sensory nerve, thereby completing a circuit.

(The concept of a constantly repeating efferent-afferent neuromuscular reflex circle maintaining postural tonus, which may be stimulated by an exteroceptive afferent impulse into an overt movement, was derived from Sherrington's work on Postural Tonus of Muscle and Nerve, Brain, Vol. 38, Part 3, 1915. The value of the concept of the proprioceptive component and postural tonus of the neuromuscular reflex circuit for explaining many fundamental problems in behavior, which were otherwise inexplicable, was emphasized in my Autonomic Functions and the Personality, 1918. Since this publication, I have found that Bok, in 1917, referred to by Holt in Animal Drive and the Learning Process, Vol. I,

1930, also gave early emphasis to the importance of using the concept of reflex circles instead of the old concept of reflex arc.)

Diagram 3 illustrates the relationship between unstriped, autonomic sensorimotor reflex circuits and striped, so-called voluntary, sensorimotor reflex circuits. This diagram is also used to illustrate the intimate reciprocal relationship which we know must exist between the two muscular systems, from abundant anatomic, physiologic, clinical pathologic, psychologic and psychopathologic observations.

Diagram 3 illustrates the postural tonus of the autonomic unstriped muscle cells which include all of the muscular viscera, the heart, and the arterial and capillary vessels, and which through vasomotor influences determine largely the activity of the glands of external and internal secretion. It illustrates the intimate reciprocal influence of the tonus of the autonomic system upon

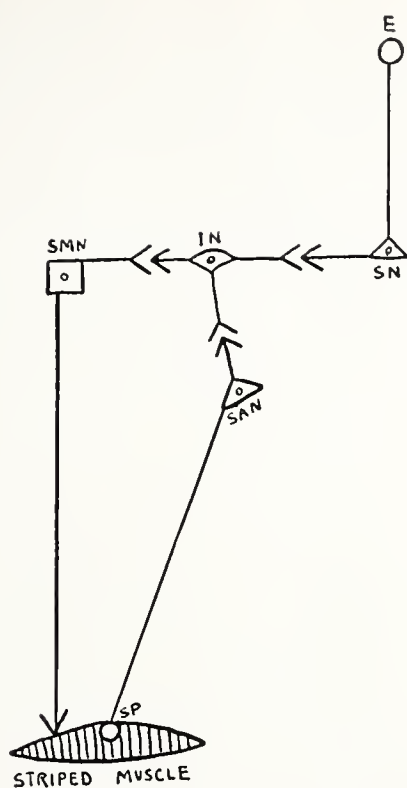


Diagram 2.—New concept of stimulus and motor sensory circuit in continuous but variable tonus responding as a group. E, exteroceptor; SN, sensory neurone; IN, intercalated neurone; SMN, somatic motor neurone; SP, somatic proprioceptor; SAN, somatic afferent neurone.

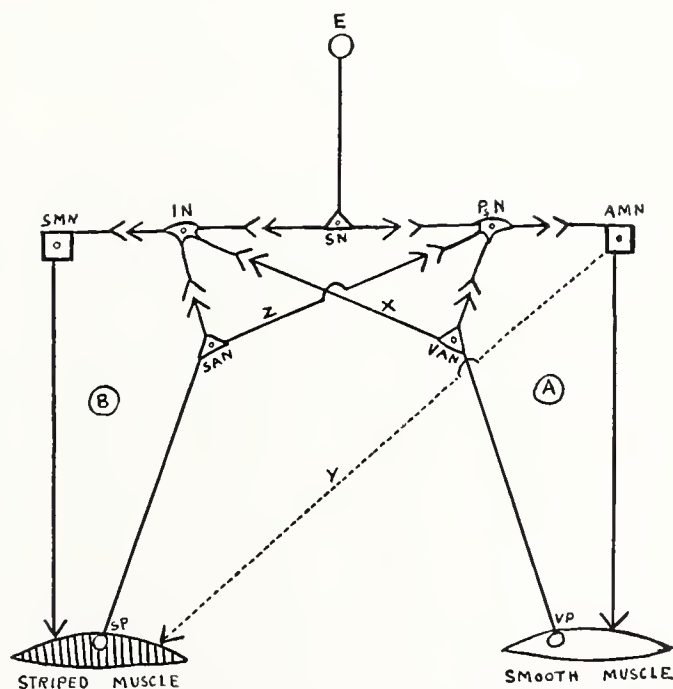


Diagram 3.—New concept diagrammatically presented to show the influence of the tonus of the unstriped sensorimotor reflex circuit (A) upon the tonus of the striped muscle circuit (B). E, exteroceptor; SN, sensory neurone; IN, intercalated neurone; SMN, somatic motor neurone; SP, somatic proprioceptor; SAN, somatic afferent neurone; PgN, preganglionic neurone; AMN, autonomic motor neurone; VP, visceral proprioceptor; VAN, visceral afferent neurone.

The postural tonus of the unstriped reflex circuit (A) influences the postural tonus of the striped muscle reflex circuit (B), through X and probably Y. Reciprocally B has some influence upon A through Z. The influence of the external stimulus at E is qualified by the kinesthetic stream from the muscle set of A and B. The reactions of A are a resultant of its own state of tonus plus the stimuli from E plus the stimuli from B. Thus, a man, in the face of a dangerous situation at E, by keeping up a resistive attitude, may prevent himself from becoming too frightened by the situation to meet it safely. (No attempt is made in this diagram to show association paths and higher central connections which have their final organization through the paleocephalon.)

(The actual mechanism by which the autonomic nervous system influences the tonus of striped muscle is still physiologically and anatomically unsettled. It seems to be generally accepted at present that the autonomic efferent component represented by line Y in Diagram 3 goes to the striped muscle field, but it is questioned as to whether the nerves end in the striped muscle cells or in the unstriped muscle cells of the finer arterioles—somehow to have an influence upon the nutrition and tonus of the striped muscle cell. These incompletely understood factors, while important for physiology, are not deterrents from using the valuable concept of the interrelation of autonomic neuromuscular tonus with cerebrospinal neuromuscular tonus as a basic factor in human and other animal behavior.)

the striped muscular system, and shows how the striped muscle system may influence the autonomic system.

It is at once apparent to anyone having medical knowledge that the functioning of the nerve and muscle cells of the dual reflex circuits in everyday life must be greatly affected by their nutritional or physiochemical states as well as their organic constitution. Hence metabolism, endocrine secretions, any form of intoxication (infectious disease, exhaustion or chemical), must affect the integrity and strength and weakness of their functioning.

This conception of the sensorimotor reflex circuit, we wish to show, contains all the factors necessary to bring the various branches of the medical sciences into a coöperative working relationship with psychopathology and psychology.

We will now try to apply the functional implications of this concept to those aspects of human behavior which are particularly important to the physician, surgeon, and psychopathologist.

#### POSTURAL TENSION IN RELATION TO MOVEMENT

Postural tonus, as it is used here, does not mean the position which the organ or limb may assume through the contraction or relaxation of the muscles, but it means the quality of firmness or laxity of the tone of the hollow muscular viscera as they hold their contents, or of the skeletal muscles as they hold the skeletal frame against the pull of gravity. This tonus makes the basis for muscular contraction and relaxation, but is not the act of overt movement itself. To illustrate: When we are in good confident spirits we find we move easily, firmly, with little fatigue. When we are discouraged and sad we make the same movements with very different muscle tonus, and this shows in our drooping posture. We are not concerned here about sadness making the drooping tonus or the drooping tonus making sadness or what nutritional, endocrine, environmental factors make either sadness or drooping tonus. We are now concerned with the fact that the muscle tonus, whatever it is and whatever mood is involved with it or however it comes, makes the basis for movement and determines its quality for effectiveness. This tonus also influences our reactions to stimuli, hence influences externally and internally aroused sensation. When the surgeon holds his needle to sew delicate tissues, his capacity for making skillful movements depends upon the autonomic-affective tonus of his grip on the instrument. If too tense or too soft, the skill of movement and touch will be impaired. This basic quality applies to every skillful thing we try to do in life.

The tonus of the neuromuscular circuit may vary from pathologic hypertension to a pathologic hypotension, such as we find in spastic and flaccid conditions of the muscular viscera. Between these extremes there is a range of tonus which is best suited for man's vast varieties of skillful, powerful movement, without discomfort. Too much tension makes movement painful and

difficult; too little tension makes our movement weak and difficult. Both extremes are ineffective and distressing. In some conditions hypertension, in others a mean tension, and in still others hypotension are best suited to meet conditions of particular situations. For instance, in emergencies some degree of hypertension is more effective than a relaxed, indifferent status; and conversely, hypertension in an easy situation would be disadvantageous, if not very pathological. But in the general routine of everyday life there is a state of tonus which is more effective, and this status every person must find and maintain.

The degree of tonus is the basis for overt action to a situation. Apply the same situation to different degrees of tonus and we have different kinds of overt adaptation. When we react one way to a situation at one time, and quite differently to a similar situation upon another occasion, we find that our postural tonus or attitude has been very different.

Diagram 3 does not show association paths of individual reflex units with others. Obviously there is an extensive system of integrations which weaves them into a great working unity. We need to recognize, in order to complete our picture, that all neuromuscular segments are rarely ever in the same degree of tension, but that usually some segments are in states of hypertension and others quite relaxed, according to the environmental conditions and the affective and metabolic status of the organism. If we will observe ourselves we can easily feel these shifts of tension occurring within us as our emotions and conscious interests change; as, for instance, from pleasurable, playful interests to serious or dangerous work. We can feel changes occurring as we get hungry, famished, thirsty, cold or hot, tired, go to sleep, or get into heated arguments or accept delightful personal relations. In other words, metabolism, environment, emotion, and mentation influence our postural tensions; and reciprocally, our postural tensions influence our reactions to these internal and external influences.

Our postural tensions in our various visceral and skeletal segments, working as a unity, make up our characterologic attitudes toward our own inner capacities and our external situations, particularly our personal relations. We all know that our attitudes toward a situation determine the way we will think about it, whether we will dislike or like it, coöperate or resist it, etc. We all have experienced the feeling of having a resistant, firm postural tonus persuaded to change to a more relaxed, giving-in quality, and the reverse.

There are still additional factors we need to bear constantly in mind if we wish to have a comprehensive understanding of human behavior for clinical purposes.

No living thing can live for any length of time independently of its environment, and we need to overcome our illusion of personal autonomy. We are constituted of the forces which constitute our environment, and every momentary state of our being (behavior, affectivity, mentation) is dependent upon the forces within us and around



us. Our sensorimotor reflexes are inextricably dependent upon environmental stimuli; hence, whenever we consider the clinical meaning of tensions of a patient's organs we must consider them in relation to his feelings and beliefs about his environmental situation, particularly his personal relations and the nature of these relations.

Through countless repetitions of situations from birth onward, probably all our reflexes have become conditioned to environmental stimuli, so that we are not only incapable of developing any truly independent actions or thoughts, but much of our behavior follows well-defined patterns in a well-defined environment.

*I also want to emphasize here the law of neutralization of affective pressure in relation to postural tensions; that, namely, whatever variations of our affective pressure may be developed, whether love, fear, hate, shame, sorrow, or jealousy, they force us to get from our particular environment (or create in it) situations which will counterstimulate us and neutralize these variations until we return to a state of comfortable equilibrium. If we are hypertense and too excited, we need soothing stimuli; and when hypotense we need exciting stimuli. As fast as we build a well-balanced eurythmic status, our environment (particularly our personal relations) and our metabolic functions disturb it and require us to keep on building to the end.*

There is, then, an intimate relationship between our emotions, or rather the emotional variations of our stream of affective pressure, and the postural tensions of our vital organs. We are not concerned here as to which is primary and which is secondary. We do know from such experiments as Cannon's and Sherrington's, from clinical symptoms and physiologic functioning in psychopathologic cases, that postural tensions of the viscera form a basis for the quality and quantity of our various emotional reactions, and our emotional reactions certainly influence our visceral tensions and their vital functions. We need but call attention to the relations of hyperthyroidism and fear; how hyperthyroidism increases fearfulness, and fright increases hyperthyroidism.

(To be continued)

## ORGANIZED TROPICAL MEDICINE IN THE WESTERN UNITED STATES\*

By ALFRED C. REED, M. D.  
San Francisco

DISCUSSION by John Martin Askey, M. D., Los Angeles; Robert A. Peers, M. D., Colfax; Alanson Weeks, M. D., San Francisco.

TROPICAL medicine means the practice of preventive and clinical medicine in warm climates. The term is inexact and unsatisfactory and yet it is the best available. All disease processes are modified by climatic conditions, especially by those climatic elements which are associated usu-

ally with the tropics. This means chiefly increased mean temperature, low barometric pressure, and either excessive dryness or excessive moisture. The degree and character of insolation play an important part. Social and sanitary conditions of native races must be considered. Local food supply and food habits, and religious beliefs affecting health are all included. The reaction of all these factors concerns the physician, first in relation to the local or native inhabitants, and second, in relation to foreigners.

### SCOPE OF TROPICAL MEDICINE

Tropical medicine is characterized by certain indirect results of warm climates also. Here the insect life is overabundant and furnishes many problems both as vectors and as disease causers which are radically different from those of cooler climates. Poisonous animals and fish are more abundant and in closer contact with human beings under less controlled conditions. Bacteria flourish and take on characteristics which modify disease processes and at the same time means and opportunity for transfer of infection are different and easier. Large populations are either so crowded that health conditions are affected or so primitive that disease prevention becomes difficult or impossible. Poverty, overcrowding, ignorance, and local medical systems completely change the practice of both clinical and preventive medicine. Absence of sanitation and hygienic ideas modify disease control and even the nature of disease.

Tropical medicine also includes diseases and conditions which are to us exotic and which, while thriving primarily in warm climates, are also acclimated and more or less endemic in cool or temperate climates. The term thus includes medical practice in Asia and parts of the Orient which are not strictly in the tropic belt.

### THE DEFINITION AS APPLIED TO WESTERN UNITED STATES

With such a definition of tropical medicine it is evident that we have in the western United States many tropical diseases which are endemically established. Examples of these are seen in tularemia, Rocky Mountain fever, coccidioidal granuloma, torula, plague, bacillary dysentery, amebiasis and intestinal parasitic affections, liver abscess, trichinosis, pellagra, beriberi, various ringworm infections, undulant fever and malaria. The entire index of tropical diseases, with the possible exception of trypanosomiasis, may be seen sporadically at any time by any physician. Filariasis of various forms, sprue, blood and intestinal flukes, leprosy, dengue fever and yaws are met with occasionally now.

One other feature of tropical medicine, too often ignored in all our medical teaching, is human geography. Space forbids discussion of this fascinating and invaluable field of science. It bases itself on the conception that, just as the earth geographically is a unity made up of many interrelated parts, so is humankind a unity, closely interrelated, and separated, drawn together and, to a surprising degree, controlled by geographic environment. Man in relation to

\* From the Pacific Institute of Tropical Medicine of the University of California.

\* Read before Western Branch of American Public Health Association at Salt Lake City, June 12, 1930.



the earth is human geography, and this must be a foundation stone in our definition of the expression, tropical medicine.

#### EUROPEAN COUNTRIES AND TROPICAL MEDICINE

The special nature of tropical medicine has been recognized by all of the European countries. They have found that commerce and transportation on the one hand, and proper protection against tropical disease on the other, make necessary special institutions where the problems of tropical medicine can receive expert attention. Thus we see in Amsterdam the excellent tropical institute operated by the Dutch government. Here regular graduate courses are given to physicians, especially those expecting to serve in the merchant marine and in the Dutch East Indies. Excellent research is carried on also on diseases that are a danger to Holland itself. Germany has the outstanding tropical institute of Hamburg. Here in the greatest German port, in a far northern latitude, we find tropical medicine recognized not as an adjunct to commerce, but as a necessity for foreign trade. Graduate courses, facilities for special workers, a tropical hospital and a large medical research plant are busily engaged in study and in the treatment of actual disease. This institute is supported entirely by the city of Hamburg, although to it come students from all over the world, and in it are treated patients from all over the world. The immediate service to sailors in all of these tropical centers is pre-eminent.

Belgium has an excellent tropical school in Brussels. In Paris are found a group of university and research institutions doing this type of work. The same is true of Rome. England, living by foreign trade, has four schools of tropical medicine of which the largest and best equipped is the London School of Hygiene and Tropical Medicine. A new two million dollar building was given by the Rockefeller Foundation two years ago and has just been occupied for the teaching and research of this institution. A series of tropical and sailors' hospitals are connected with it. These great schools of Europe are all outside the tropics. They have developed because of actual necessity for their service. These countries know from hard experience that without such institutes commerce and foreign trade will not survive. They are advance agents of commerce. They are necessary for business men, travelers, and all who go abroad. Why should not the United States take counsel from this experience of older countries, whose very existence is based on proper foundations for their foreign trade?

#### UNITED STATES NEEDS THREE CENTERS OF TROPICAL MEDICINE

In the United States at least three centers are needed for tropical medicine. These of necessity must be in the great ports. They must also be located where domestic interests will best be served from the standpoint of research, treatment of patients with these diseases, and availability

for students. The logical places for American schools are in New York, New Orleans, and San Francisco.

A tropical school is best situated when made an integral part of a university and when it is in close or intimate contact with a Class A medical school. Such a situation allows close association and consultation with other related university departments, such as in chemistry, bacteriology, physics, agriculture, animal husbandry, languages, and various lines of engineering and biology. It allows joint research and use of equipment with the medical school. It makes easier undergraduate teaching in tropical medicine. It avoids unnecessary duplication of facilities. It simplifies the problem of hospital space for tropical medicine. It unifies medical activities to the advantage of visiting physicians and students. It assures permanence and economic business management, factors which appeal strongly to financial supporters, and which give to this type of organization peculiar memorial advantages. Finally it permits a teaching museum of tropical medicine and hygiene as a division of the general medical museum, and an extensive tropical library as a division in the general medical library.

#### THE PACIFIC INSTITUTE OF TROPICAL MEDICINE

Analysis of these various data has led to the establishment of the Pacific Institute of Tropical Medicine as a division in the Hooper Foundation for Medical Research of the University of California. Its location on the Pacific Coast, in a great port, as part of a university, closely associated with a university medical school, and with avoidance of duplication of preëxisting facilities, is the result of years of careful study and extensive consultation. As an indigenous product, its growth must be slow and adapted to the requirements of its actual usefulness. It is organized for work in three definite and specific lines.

*The Educational Work of the Institute.*—The first of these is educational. Courses will be given to medical graduates in tropical medicine and hygiene, covering some six weeks, and intensively presenting a complete curriculum with adequate laboratory instruction. This course is designed as a complete review for graduates of several years' standing who wish to bring themselves up to date in tropical medicine and also as a specialized presentation of the subject-matter for physicians who have had no detailed acquaintance with tropical medicine before. A seventh week will be given in ordinary public health especially to meet the requirements of public health officers. This will allow those taking the first six weeks to get an acquaintance with the methods of public health work and at the same time those taking the seventh week can add on the sixth week of tropical hygiene and certain phases of parasitology.

Special courses for nurses will be offered when facilities permit, to accommodate nurses going into professional work abroad, whether in a private capacity, in commercial positions, in Red Cross or other semi-governmental lines, or in



missionary fields. Popular classes for travelers and others intending to live or travel in the Orient or the tropics have already been started. Facilities will be provided for a limited number of special workers, both clinical, in pure research and in laboratory and diagnostic technique. Special fellowships will allow more extended research in both clinical and laboratory branches. The staff also offers whatever courses are wished in these lines in the undergraduate university medical school.

*The Research Work of the Institute.*—The second line of work of the tropical institute is in research. The combination of patients and laboratories makes possible intensive study of patients not only for diagnosis, but also for therapy. Treatment methods need special investigation in the case of every disease in this field. New remedies are constantly being prepared and better understanding of pathologic physiology, changes our understanding of the indications for treatment. In the past year we have conducted a special intensive study of new arsenicals in the treatment of amebiasis. This is being done along the same lines that we are using for study of foreign drugs from native tropical formularies. Analysis is first necessary to determine the active principles and chemistry. Then these are tested out *in vitro* on the amebas or other parasites concerned. Cats, rabbits, and dogs are then used to establish accurate toxicity figures. In some cases the therapeutic effects can be studied at this stage both clinically in the living animal and histologically and pathologically. If the preparation seems thus far to warrant it, monkeys are then treated, and in the case of amebiasis, those having a natural amebic infection are used. If the therapeutic results again are satisfactory, the preparation is cautiously applied to human patients with the disease concerned. There is no doubt that many valuable drugs are used in empirical native practice in the tropics, and study of these is highly desirable and promising. We now are engaged in study of certain drugs used in the old Arabic practice of Egypt. Arrangements are under way for similar studies on drugs from Thibet, India, Iraq, the Philippines, China, and Central and South America.

Research in tropical medicine in San Francisco needs urgently facilities for study of tropical diseases such as the chronic dysenteries, severe primary anemias, splenomegalies, and sprue. Such facilities we expect to have available shortly. Ocean commerce brings many medical problems both of disease on shipboard and of hygiene. Proper medical kits and medical service on shipboard are matters of extreme importance. Ventilation, water supply, protection of food supplies, control of contagious disease carriers among food handlers, control of insects and parasites, various types of cargo spoilage, provision of food and medical supplies for institutions and expeditions—these all have important research problems requiring solution.

*The Clinical Activities of the Institute.*—The third division of work in a tropical institute is

the clinical care of patients. These are drawn from foreign local populations, returned travelers and business representatives, missionaries, government employees, sailors and foreign travelers in this country. In addition the list of indigenous tropical diseases is so extensive that many patients are found among persons who have never left the United States. Special facilities are available in a tropical institute for diagnosis and treatment as well as for study of these patients, and also a staff is at hand experienced in knowledge of the special problems involved. All of these things make for better service to the patients.

The staff and laboratories necessary in addition to the clinical services will include divisions of helminthology, medical entomology, hygiene, protozoölogy, bacteriology and mycology, pathology, pharmacology and therapeutics, and chemistry. A teaching museum of tropical medicine and hygiene must be developed for visual medical education. A library of tropical medicine is being organized and developed now which will eventually be as complete as it is possible to make it.

#### FIELD OF ACTIVITY OF A PACIFIC COAST INSTITUTE

The legitimate field of activity of a tropical institute in the western United States has the following geographic areas which need study along the organized lines just sketched. Spanish America has students, graduates in medicine, business men, tourists, patients, and official representatives who ought to find on our Pacific Coast the things they require. The same may be said for the Pacific Islands, including Hawaii and the Philippines, the Orient, the dry plateau country of our own southwest and Mexico. Each of these sections has medical problems whose solution would be furthered by a tropical institute. A chain of such institutes has been projected for Guatemala City, Honolulu, Shanghai, and Manila, each locally independent and autonomous, but all united in a program such as has been outlined and allowing free exchange of students, special workers and pathologic material, as well as providing coöperation in research to their common advantage.

As has been noted, the Pacific Institute of Tropical Medicine has been established as a division in the Hooper Foundation for Medical Research of the University of California. It is thus located in San Francisco in close association with the extensive research activities of the Hooper Foundation and with the comprehensive plant, staff, and activities of the University Medical School. It has enlisted strong support in shipping and business groups. The press is avid for publicity about it. The nucleus of its development is now in operation. Competent judges consider it essential for medical and commercial development of the West. The names on its medical advisory committee insure the soundness of its policies and activities. It needs realization on the part of the medical profession that here is designed a center where all that pertains to tropical medicine in the broad sense can be focussed,



that here is an institution whose growth is the primary concern of the business community and the far-sighted patriotic benefactor, and finally, that medical science here can offer a service not only of commercial value, not only of humanitarian benefit, not only of scientific advancement, but, above all, of international good-will and pan-Pacific comity.

University of California Medical School.

#### DISCUSSION

JOHN MARTIN ASKEY, M. D. (1930 Wilshire Boulevard, Los Angeles).—No one who has visited the highly developed centers for the study of tropical medicine in Europe can fail to feel the relative minor interest in tropical diseases displayed in this country. It is true the necessity for protection of trade interests by these countries with large tropical possessions has led to a more intensive study than has been necessary here.

However, the commercial interests of the United States in tropical and semitropical countries are yearly increasing. Communication and contact between the tropics and the temperate zones are rapidly tending to break down the geographic barriers hitherto roughly limiting the activity of tropical disease.

There are few California physicians who have not seen a number of patients with varying types of exotic disease. Travelers or missionaries return with amebiasis or filaria; tourists from Central and South America are found with malaria or sprue. There is a small but constant influx of people suffering from diseases with symptoms seemingly bizarre unless the possibility of tropical diseases be considered. The first case of filaria I saw was in a Chinese student supposedly in the incipient stages of tuberculosis.

In addition to those patients who have brought their diseases from elsewhere, we have a rich native endemic group included in the rare type of tropical diseases. The large number of reports in the last few years by California physicians of patients with amebiasis, coccidioidal granuloma, of torula infection and undulant fever, would indicate an aroused interest rather than an increased incidence of these diseases. We are thinking more about them, consequently recognizing more of these diseases.

There is thus an unavoidable interdependence between so-called tropical medicine and general medicine. A keener knowledge of tropical medicine is becoming more and more a necessity for the general practitioner and particularly for those physicians on the seaboards who are in more constant contact with foreign countries.

We are singularly fortunate on the Pacific Coast in having the Pacific Institute of Tropical Medicine. It has been wisely located. As Shattuck says, "The tree of tropical medicine should flourish best in the soil of a well-rounded medical center."

The educational work will have far-reaching effects in helping those who intend pursuing medical work in foreign countries and in increasing the knowledge and efficiency of the practicing physician at home. The paper by Doctor Reed spreads before you a fascinating vista of the work to be done.

The extent to which the Pacific Institute is caring for patients is indicated in the fact that 445 treatments were given to eighty-three patients in the first year of its existence. With such diseases as leprosy, pellagra, and elephantiasis included, one can see the variety of clinical material that will become increasingly available as the institute grows.

No more fascinating diseases exist from the standpoint of unusual pathology and symptomatology than the so-called tropical diseases.

I am particularly interested in the work being done in the study of foreign drugs, used empirically but apparently with success in native practice. We remember the original empirical use of Peruvian bark for malaria. The shrub *ma huang* was used by the

Chinese for five thousand years before ephedrin was isolated a few years ago. We believe that valuable discoveries will arise from the research work at the institute.

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ROBERT A. PEERS, M. D. (Colfax).—Doctor Reed's paper is but another reminder that the United States is no longer a country satisfied to remain isolated geographically, politically, and commercially. With the great growth in population in the United States, the citizens demand and indeed require, in addition to home-grown and home-manufactured foods and supplies, an ever-increasing quantity of imported foods, manufactured articles, and raw materials. Our country has abandoned its old policy of geographical sufficiency and has taken unto itself not only the ownership and government of tropical and semitropical possessions, but in addition has, rightfully or wrongfully, arrogated to itself the policing of smaller countries and exercises paternal supervision of still others. The United States also sends its soldiers, its sailors and its marines to foreign lands and in recent years has at last awakened to the great possibilities of foreign trade. Our fellow citizens have begun at last to understand the meaning of the words "imports," "exports," and "balance of trade," and the great corporations of the United States have at last begun to sense the fact that this balance of trade, favorable or unfavorable, influences prosperity, employment and dividends, and to that end have established agencies, shops, and plants in foreign countries. Ours is a country also which as a result of the great movement of large bodies of men to all parts of the world during the great war and because of the education in foreign travel thus established (which has been further promoted by the great national prosperity following the war, resulting in an immense increase in the popularity of foreign travel) is now beginning to realize that foreign entanglements are not alone of a commercial or of a political nature. Less understood but just as vital, or more so, is the danger of contact with and importation of exotic diseases and disease-producing organisms. As Doctor Reed has pointed out, the older commercial countries of Europe have long been awake to these dangers and have taken steps to safeguard not only their foreign travelers, but also their home population.

It is true that many of our citizens, including not a few of our medical confrères, have long known of the existence of these dangers and of the necessity of taking steps to combat them. It has remained, however, for the University of California to bring into existence and put in action a living organization for the study of tropical disease and for the protection of United States citizens at home as well as abroad. The Pacific Institute of Tropical Medicine of the Medical School of the University of California, the aims and objects of which he describes in his paper, staffed by himself as its chief and with earnest, informed scientific workers; connected as it is with a great university and situated at the gateway to the Pacific Ocean, upon whose waters will, in all probability, be carried a large part of world commerce, this institute under Doctor Reed's guidance will undoubtedly be a potent force in the solution of many problems of tropical diseases, and will aid greatly in the dissemination of information relating thereto and in the protection of the lives and fortunes of our own citizens and of the citizens of all countries interested in foreign trade and travel. Certainly the Pacific Institute of Tropical Medicine deserves the support of California, of its corporations and citizens, and particularly of all members of the medical profession.

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ALANSON WEEKS, M. D. (384 Post Street, San Francisco).—Having served three years in my medical youth as a government surgeon on shipboard over a few of the Seven Seas; having worked for a number of years in the Public Health Service in San Francisco, caring for sailors who came from all countries



of the world; having been associated with Dr. John A. Long in the old Marine Hospital at San Francisco on his return from the Philippines, when he showed us for the first time we had amebiasis as a common disease in California, and taught us that many other parasites heretofore ignored were with us; and having acted as medical supervisor through many years for various steamship companies, the writer feels he can state with some authority that Doctor Reed in his paper has been very modest in calling our attention to the great value of a school of tropical medicine in California.

There is nothing one can add to his paper in the form of discussion, as he has covered the ground so thoroughly. I would emphasize, however, that organized medicine throughout our land should make it one of its first duties to help carry out all the recommendations and suggestions Doctor Reed has so carefully placed before us. The medical men in our country are directly affected by the importation of so-called tropical diseases.

The support for such a school should be more easily forthcoming from "Big Business" because it can be so readily shown to save many dollars of cost on account of quarantine and fumigations, and the loss of time of valued employees through sickness. We all know how much easier it has always been to acquire public moneys for the protection of pigs than for the protection of human babies.

## OCULAR MUSCLE OPERATIONS\*

By JOSEPH L. McCOOL, M. D.  
San Francisco

DISCUSSION by Roderic O'Connor, M. D., San Francisco; Hans Barkan, M. D., San Francisco.

THE establishment of a correct diagnosis of any pathological condition before applying treatment is so fundamentally sound in principle that it seems rather superfluous to present a paper dealing with such a subject. Nevertheless, it is a fact that the success of an operation on the ocular muscles depends upon accurate knowledge of all factors which enter into the development of the muscular anomaly for which the operation is to be performed. It is only within comparatively recent years that ophthalmologists have made critical studies of underlying causes of motor anomalies before applying treatment. Even today many convergence and divergence anomalies are treated as if they were the result of abnormalities of the lateral muscle when, as a matter of fact, not a few are the result of dysfunction of the vertical ones.

Before discussing in detail the various types of heterophoria and squint that lend themselves to surgical correction, the anatomy of the ocular muscles and the physiology of ocular movements will be briefly considered. This is, of course, familiar ground, and only a few slides to emphasize certain points will be shown.

### BROAD SCOPE OF MUSCLE OPERATIONS

All types of motor anomalies are amenable to surgical interference. In order that the subject

may be approached in a systematic way it should be divided into two sections: (1) squint, functional and paralytic; (2) heterophoria.

### DIAGNOSIS OF FUNCTIONAL AND PARALYTIC SQUINTS

The differential diagnosis between functional and paralytic squints ordinarily is not very difficult to make. In the first place, the history is often not only suggestive, but in the vast majority of cases is conclusive. This is particularly true in young children.

If the squint is present from birth it is nearly always paralytic, whereas functional squint first makes its appearance when the child begins to regard objects at close range. If the mother is a close observer, her testimony may be relied upon, but it must not be forgotten that in children whose fusion faculty is weak the establishment of binocular single vision may be delayed until the child is nearly a year old. At this time the eyes will be straight and will remain so until something occurs to disrupt the fusion faculty, usually some disease of childhood or a fall. An unobserving mother will, having failed to recognize this interlude, testify that the child's eyes have always been crossed.

Diplopia, the most valuable and constant of all the symptoms of ocular palsy in the adult is of no value in young children, as it is a subjective symptom and, even if recognized by the child, its character could not be determined by the surgeon. Its presence, however, may be inferred by the way the child holds its head. This symptom will be discussed later.

Limitation of movement is much easier to study in an adult than in a child, and yet, even with very young children one can quickly elicit this symptom by utilizing the light projection test. By having the child regard a small electric light in the primary position and then making quick movement of the light laterally or in the oblique positions, the child's eyes will instinctively follow the light and any lagging of one of the eyes may be detected. The difference between the primary and secondary deviation may be determined roughly if the child is at all tractable, although it is sometimes difficult to get a youngster to concentrate on fixation long enough to give the information desired. They are more likely to look at the examiner than at the light.

Enough has been said to show that, ordinarily, it is not difficult to diagnose a paralytic squint even in young children. However, it is not nearly so easy to differentiate purely functional squint from that caused by a slight paresis of one of the muscles, and, because the treatment is radically different, it is a very important differentiation to make.

In functional squint in young children it is rare indeed to find any limitation in temporal rotations, for it is only in those cases which have lasted a long time that contractures and tissue changes take place in the external and internal recti muscles. If, on the other hand, one finds some temporal limitation of movement in one or

\*From the department of surgery, University of California Medical School, San Francisco.

\*Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

both eyes in a child obviously too young for tissue changes to have taken place, a diagnosis of paresis is justifiable. Certainly it should be given careful consideration in building up our diagnosis.

Of much more frequent occurrence is that type of convergent squint due to congenital paresis of one of the vertical muscles. In this group the superior recti are the muscles at fault in the majority of cases. Either one or both may be affected with or without ptosis. Usually the picture is that of paresis of one superior rectus muscle with secondary spasm of the opposite inferior oblique muscle, an example of primary and secondary deviation. I have seen one case in which the deviation was caused by paresis of the inferior rectus muscle with spasm of the opposite superior oblique muscle. This latter type is rare. A diagnosis of functional convergent squint is made frequently when the cause of the squint lies in a paretic superior rectus muscle. Of course it is very difficult to say how many cases are the result of this anomaly, but I am sure the actual number is greater than is usually believed.

While the recognition of the two forms of convergent squint—alternating and monocular—is not difficult, it is well to remember that the results obtained from the surgical treatment of alternating squint are sometimes disappointing. In alternating squint there is a congenital antipathy to binocular single vision; one may obtain simultaneous macular perception, but no fusion with the amblyoscope. In monocular squint the fusion sense is present though only superficially developed in a large proportion of cases. In alternating squint the best that we can hope for from operation is a cosmetic cure; in monocular squint, if the fusion sense is present and demonstrable with the amblyoscope before operation, binocular single vision may be achieved by surgical means plus amblyoscopic training.

Of the various deviations in which binocular single vision is present, but maintained only by the expenditure of excessive nerve impulses, the vertical ones are responsible for the greatest discomfort to the patient. It is true that esophoria and exophoria can and do cause acute distress to their possessors, but, in my experience, the discomfort is not to be compared to that caused by hyperphoria. The person who has exophoria, though uncomfortable when regarding objects at a distance, suffers more when using his eyes at the occupational distance; anyone suffering from esophoria may be comparatively comfortable when reading or sewing, but may suffer when using his eyes for distant vision. For the hyperphoric person there is no point from infinity to extreme convergence at which the maintenance of binocular single vision is not accompanied by distress of varying degrees. This is directly dependent upon the stability of his nervous system.

In the above, in a general way, the muscular anomalies which, under certain circumstances, call for surgical treatment have been enumerated. With the possible exception of a complete paralysis of an ocular muscle the presence of which

can be detected by one symptom, limitation of movement, it is necessary to study the patient by applying a number of diagnostic tests.

#### DIAGNOSTIC PROCEDURES

The importance of a careful history has already been mentioned. This cannot be overestimated in making a diagnosis. A comparative study of the vision of the two eyes in any case of squint will enable us to determine whether it is alternating or monocular. Any disparity in the corrected vision of the eyes, in the absence of any opacity in the media or of fundus disease, points to monocular squint. In alternating squint corrected visions in the two eyes is equal, or nearly so.

In every case of squint an effort should be made to determine, by means of the amblyoscope, the state of the fusion faculty. If simultaneous macular perception only is present before operation, a cosmetic result may be expected. True fusion with or without amplitude offers the prospect of a functional as well as a cosmetic cure. If the child has depth perception before operation, the prognosis is still more favorable. The deviation in degrees of arc should be measured by any of the familiar methods.

Of the various tests for the diagnosis of heterophoria and squint, there are none which can compare in simplicity and effectiveness to the screen and its subjective complement, the parallax test. Because of their reliability in diagnosis the writer will describe them as he uses them, with particular reference to the information to be gained by studying the behavior of the eyes in the six cardinal directions of the gaze.

The patient is directed to look at a spot of light slightly below the level of his eyes twenty feet away and a blinder is passed quickly to and fro from one eye to the other.

If there is orthophoria neither eye will deviate when covered and each, consequently, will remain steady when the screen is removed. If, however, there is a squint or heterophoria of more than a degree or two, each eye when covered will deviate and when uncovered will turn back into fixing position. Thus, if there is either an esophoria or convergent squint, each eye in turn will deviate in, or toward the nose, when covered and will swing out again when uncovered.

*Squint and Heterophoria.*—Having thus ascertained that a deviation is present, we next differentiate between a squint and heterophoria. To determine this we make the patient look fixedly at the test object with both eyes open, and then alternately cover and uncover one eye, say the right, leaving the other uncovered all the time (method of binocular uncovering). By thus covering the right eye we compel that left to fix, if it is not already doing so, and we allow the right eye to deviate if it has any tendency to do so or if it is not already deviating.

In this case three conditions may obtain:

1. There may be heterophoria. In this event the left eye which if fixing already will continue



to fix when the right eye is covered, and the latter, which was fixing before being covered, will deviate. Then when the cover is taken off again the right eye will swing back into place and the left eye will remain fixing, *i. e.*, both on applying and removing the screen but one eye will move, and that the one which is being covered.

2. There may be squint of the right eye. In this case the left eye, which was fixing before the right was covered, will continue to fix, and the right eye, which was deviating before it was covered, will remain deviating. Then when the right eye is uncovered again, the left eye will still remain fixing (because it is the eye that habitually fixes) and the right will still remain deviating (because it is the eye that habitually deviates). That is, both on covering and uncovering, neither eye moves, provided the cover is put over the squinting eye.

3. There may be a squint of the left eye. If so, the left eye, which was deviating before the right was covered, will now have to move into place in order to fix. As it moves into place, the right eye, which is behind the screen, will move out of place. Then when the screen is removed the right eye, which has thus become deviated, will move back into the fixing position, since it is the right eye which ordinarily fixes when both eyes are open, and the left eye will move out of its fixing position and back to its ordinary position of deviation. That is, both on covering and uncovering, both eyes move, provided that in the case of a squint the screen is put before the fixing eye.

If repeated applications of the test show that sometimes the right eye squints, sometimes the left, we are dealing with alternating strabismus.

As we are passing the card from eye to eye in making the screen test, we ask the patient whether or not the object at which he is looking seems to move. If it does, it means that he is actually seeing double, only, instead of seeing the two images simultaneously, he sees one after the other. Thus, if, on uncovering the right eye, the object seems to move to the right, it means that the right eye image is to the right of the left eye image, *i. e.*, the patient has homonymous diplopia (esophoria). If under the same conditions the object seems to move to the left, he has crossed diplopia (exophoria). If it moves down he has a right hyperphoria; if up, a left hyperphoria.

While these tests are accurate and reliable when applied in the primary position, their value is greatly enhanced when the eyes are turned in the four oblique and two lateral positions, for it is in these positions that a deviation, the result of paresis of one or more muscles, will reveal itself.

However, before making the screen test and parallax test in the outlying field, it is better to investigate the field of binocular single vision with a red glass before one eye. If diplopia develops, it usually points to the offending muscle or muscles. Not infrequently, in spite of the

interposition of the red glass, the fusion sense is so strong that there is no diplopia. In these cases the screen and parallax test may be used with the result that fusion is coaxed into abeyance and a characteristic diplopia develops.

Occasionally, if the patient is told to gaze steadily at the point of light held in the field under examination for ten or fifteen seconds, the eye with the weaker muscle will gradually lag enough to isolate the offending muscle.

One of the best means for revealing latent deviation is the monocular patch. In this country Marlow and O'Connor are the chief advocates of this method of diagnosis. Duane disagreed with them, believing that "prolonged occlusion did not reproduce the actual motor relations as they exist in the given case, but rather tended to make the eyes revert to their infantile state in which, not being controlled by coördinate impulses, they exhibit a varying imbalance."

I believe this objection to the method is more fancied than real, for it is hard for me to believe that the use of the monocular patch for one week on an individual who has enjoyed binocular single vision for all but a year of his life would so far disrupt his fusion sense as to permit his eyes to wander as they did in infancy. Whatever one may think of its value in revealing latent errors in motor balance, there can be no question as to its usefulness in differentiating muscular ametropia from accommodative asthenopia. The information gained from a study of the field of monocular fixation is helpful but by no means conclusive. If three readings taken on the lateral, vertical and oblique positions show a consistent limitation in one field, the muscle whose action is predominant in that field may be considered to be deficient in power.

A study of the action of the two eyes working together is of far more practical importance. A small electric light is best suited for the purpose. The patient is asked to follow the light with both eyes open when it is carried in the six cardinal directions of the gaze. If one eye lags we suspect the muscles into whose field of action we are carrying the light. While doing this it is well to observe the action, not only of the supposedly paretic eye, but also of its fellow. This test should be made with both eyes open, followed by a test with one or the other eye screened from the light but not from our view. Take, for example, suspected palsy of the right external rectus muscle. When the eyes are carried to the right the right eye lags while the left follows the light. During this maneuver, in all probability the left eye will fix. If, however, we screen the left eye and make the right eye fix while carrying the light into the field of action of the right external rectus, the left eye will be seen to deviate markedly to the right as the result of secondary deviation caused by overaction of the left internal rectus.

Even though this paper deals with the surgical treatment of muscular deviations, it must not be assumed that nonsurgical treatment has been neg-

lected. The refraction, under the most profound cycloplegia, should be carefully estimated in all individuals up to the age of forty-five. However, patients forty years old and over should have tonometric measurements made before using a cycloplegic and, if the readings are around the upper limit of normal, they should be kept under observation until the pupils have returned to normal. Without entering into a discussion of the refractive side of this subject, I should say that wearing glasses which correct a low compound hypermetropic astigmatism with the rule will have but little influence in correcting a deviation. The same cannot be said of higher errors, especially if the astigmatism is oblique and myopic. Myopic astigmatism and anisometropia are, however, important factors, and a correction for the latter should be worn long enough to remove any possible doubt in the mind of the surgeon that the deviation was caused by the ametropia. Fortunately for our patients the number of those who still cling to the belief that if the refraction is corrected the deviation will take care of itself, is gradually, though none the less surely, diminishing and I hope will finally disappear.

#### SURGICAL TREATMENT OF MUSCULAR ANOMALIES

In the surgical treatment of muscular anomalies we have four types to consider:

1. Complete paralysis of one or more muscles in which the rotational power of the muscle is completely abolished.
2. Paresis of one or more of the muscles in which the rotational power is diminished but not abolished.
3. Functional squint in which the deviation is caused by faulty coördination and not by any inherent weaknesses in the muscles themselves except in a very limited number due to structural and insertional anomalies.
4. Heterophoria caused by paresis of one or more muscles, faulty coördination, or structural anomalies and insertional anomalies.

When the deviation develops as the result of a complete paralysis of one of the ocular muscles, the lesion is usually in the nerve supplying it. In a small percentage of cases, especially in those following injury, the muscle itself may be injured; or it may be congenitally deformed or absent. Surgery, therefore, must be directed toward other muscles whose function has not been impaired. If the recti muscles are at fault, portions of the adjacent recti muscles may be transplanted and attached to the insertion of the paralytic muscles with very satisfactory results. If the superior oblique muscles are palsied, two procedures are available, both of which are planned to compensate for the elevation, adduction, and extorsion of the eye caused by palsy. A recession of the opposite inferior rectus muscle may be done, or the superior rectus muscle in the paralyzed eye may be transplanted back and to the temporal side of its original insertion.

So long as a muscle is not completely paralyzed, but retains a measure of its rotational power, it may be attached directly. In low deviations a shortening of the offending muscle may be all that is needed. If, however, the deviation is fairly high this procedure may have to be augmented by a recession of its opponent.

In functional convergent squint in which it has become evident that conservative treatment will not cure, the surgeon should not hesitate to advise operation even as young as four years of age. The operation of choice is, of course, a shortening of one or both external recti without any interference with the internal recti. Where the convergent squint is of long duration and is considerable in amount, the surgeon is justified in supplementing the shortening with a recession of one of the internal recti; later the opposite internal rectus may be receded if conditions warrant it.

In divergent squint, shortening of the internal rectus muscle with complete tenotomy of the external rectus on the deviating eye is the operation of choice. If the effect is insufficient, a shortening of the opposite internal rectus may be done, supplemented by a more complete tenotomy of the external rectus later if it is indicated.

In hypertropia, if one eye is amblyopic the superior rectus of this eye should be shortened, supplemented, if necessary, with a recession of the inferior rectus. Here, however, a cosmetic result only is sought. If the vision is equal, or nearly so, in both eyes, and if by vertical prisms we are able to establish fusion, a recession of the opposite superior rectus should be performed if the full correction of the deviation is not attained by shortening of the superior rectus of the hypotropic eye. Where there is any possibility of securing binocular single vision it is better not to disturb the inferior rectus if it is possible to avoid it.

Heterophoria offers ample opportunity for the application of surgical measures for its alleviation. Many patients, sufferers all their lives, have been made comfortable by carefully planned and well-executed operations of the offending muscle or muscles. We must not lose sight of the fact, however, that, with the exception of those cases of heterophoria caused by paresis and the few cases dependent upon structural and insertional defects, the vast majority are caused by faults in the coördinate movements of the two eyes.

*Hyperphoria.*—Before considering any operations for hyperphoria it is well to remember that the spurious forms must be ruled out. I mean by this that not a few cases are the result of a refractive error. Obviously this must be corrected and observed for at least six months. We must also rule out the results of diseases of the central nervous system and the toxemias, syphilis of the brain and cord, neoplasms, lethargic encephalitis, diphtheria, influenza, diabetes, and so forth, before considering operation.



The remaining varieties of this imbalance, namely, the intrinsic and parietic, are the ones to which we should direct our attention.

If the deviation does not exceed four prism diopters and the patient is made comfortable with the vertical prisms in his correction, I believe an operation should not be performed, with this exception: if it can be shown, and this is easy to do, that the asthenopia is muscular rather than ametropic and the individual is anxious to dispense with glasses, I believe we are justified in recommending a shortening of one of the vertical recti muscles for the correction of the defect. If the deviation be more than four prism diopters, wearing prisms is sometimes annoying to the patient, and, because we can offer them a reasonable prospect of relief, we should urge operation.

The operation of choice is a shortening of one or more of the vertical recti muscles. It is worthy of special mention that a tenotomy should never be done for hyperphoria.

*Esophoria.*—The patient with esophoria is extremely difficult to handle either surgically or otherwise, for back of the anomaly lies a very unstable nervous system which is usually the cause of it. On the other hand, unless the deviation itself is properly handled it tends to aggravate the underlying condition. In other words, a vicious circle is established which is often very baffling. The use of prisms in the correction is seldom beneficial.

In divergence insufficiency a shortening of one or both external recti is indicated, but if in addition to this there is a convergence excess a moderate recession of one, or even both, internal recti may be needed. Theoretically recession of one or both internal rectus muscles should be the operation of choice, but in practice it is safer to shorten the external recti and rely upon other measures to reduce the sensitivity of the nervous system.

*Exophoria.*—If there is a pure divergence excess with ample convergence, especially in the low amount, I always use prisms supplemented by orthoptic training and proper hygienic measures. If the exophoria for distance is under ten degrees, and particularly if prisms in the correcting glass fail to give relief, a tenotomy of one, or even both, external rectus muscles may be sufficient. It is, of course, understood that the lateral expansions of the tendon are left intact. If, in addition, there is a definite convergence insufficiency, a bilateral shortening of the internal recti is indicated. However, it must not be forgotten that of all the different types of muscular anomalies it is this one which responds best to orthoptic training, and this should always be given most thorough and conscientious attention before operation is considered.

It is, of course, obvious that no hard and fast rules can be applied in treating these anomalies, and very careful studies should be made of each individual before operation is recommended. Furthermore, all nonoperative measures should be given a fair trial. If they fail, however, operation should be advised and urged, for with the

surgical means at our disposal any competent surgeon should be able to make these people comfortable.

#### SUMMARY

1. A knowledge of the anatomy and physiology of the neuromuscular apparatus is essential before operating on the ocular muscles for the correction of heterophoria or squint.

2. In paralytic squint portions of the adjacent muscles must be used to effect rotation in the fields of action of the palsied muscle; no operation on the affected muscle will change the position of the eye. If the muscle is only parietic, much can be gained by shortening this muscle. If, however, the deviation is fairly high, this procedure may have to be augmented by a recession of its opponent.

3. In functional convergent squint in children under six years of age it is better to shorten one or both external rectus muscles, reserving control tenotomy or recession of the interni for subsequent adjustment of the visual axes. Where the convergent squint is of long duration and considerable in amount, the surgeon is justified in supplementing the shortening with a recession of one of the internal recti; later the opposite internal rectus may be receded if conditions warrant it.

4. In divergent squint shortening of the internal rectus muscle with complete tenotomy of the external rectus in the deviating eye is the operation of choice. If the effect is insufficient, a shortening of the opposite internal rectus muscle may be done, supplemented by a complete tenotomy of the external rectus later if it is indicated.

5. In hyperphoria if the deviation is four diopters or less, prisms will usually suffice. If greater in amount, shortening of the weaker muscle will usually suffice. A tenotomy should never be done for hyperphoria.

6. In esophoria, theoretically, recession of one or both internal rectus muscles should be the operation of choice, but in practice it is safer to shorten the external recti and rely upon other measures to reduce the sensitivity of the nervous system.

7. If the exophoria for distance is under ten degrees, and particularly if prisms in the correcting glass fail to give relief, a tenotomy of one or even both external rectus muscles may be sufficient. It is, of course, understood that the lateral expansions of the tendon are left intact. If the exophoria for distance is more than ten degrees, shortening of one or both internal rectus muscles is indicated. This treatment is particularly also indicated in convergence insufficiency when there is no exophoria for distance.

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#### DISCUSSION

RODERIC O'CONNOR, M. D. (450 Sutter Street, San Francisco).—Doctor McCool and I are medical classmates and we have kept in fairly frequent contact since I came to California in 1914, after my resignation from the Army Medical Corps. He adopted my "cinch" or "hitch" tendon-shortening method soon after I announced it in 1912 and has never given



it up. I wish to take this opportunity to thank him for his strong argument in its favor before the 1929 meeting of the American Academy. The Barkan brothers are recent converts, and are apparently very enthusiastic.

Doctor McCool and I have had frequent talks on our pet subject, and so far have found only one thing upon which we disagree, namely, tendon recession. I do not like it because a complete tenotomy is done and scleral sutures are used, neither of which procedures appeals to me as safe surgery. It takes very little set-back of a tendon to destroy the power of convergence which should be preserved in *all cases of esophoria* and in those of esotropia where we hope to secure binocular vision.

When more than one tendon shortening is required I prefer a definite two-stage tenotomy. This consists of a central tenotomy, leaving uncut marginal bands about two millimeters wide. These are strong enough to take the full muscle action. If more effect is desired, a measured amount of the central section may be excised, in which event the whole procedure becomes a two-stage resection. After a month, during which time the cut portion reattaches to the sclera slightly back of the original insertion, the marginal bands are cut without touching the central portion. The central cut is usually made at the time its opponent is shortened because it can cause no harm. Frequently the marginal cuts are not needed. The advantages of this scheme, *which I believe is original*, are that at no time is control of the globe lost, such as might happen after a tenotomy anchored by scleral sutures, and we have avoided the use of such sutures. This fits in with my whole idea of muscle surgery which is to do all the work on tendon tissue, carefully avoiding the globe.

This scheme was explained to Doctor McCool several years ago when he came down from Portland to see, by assisting in a number of operations, just how I did my shortening. Apparently I did not convert him to its value.

This two-stage operation works out very nicely in cases of exophoria with strong convergence. Recently I operated on a little girl of nine who had twenty-two degrees exophoria which was reduced to four degrees by this method applied to both eyes. She permitted it to be done under local anesthetic.

As to vertical deviations. For many years this has been my pet hobby, as I feel that only by my method can most of these be handled surgically with safety. The following cases emphasize Doctor McCool's argument.

At the 1923 American Medical Association meeting I presented a little girl in whom a marked left esotropia was changed to an esophoria by shortening the right superior rectus as the *only* operation.

Another patient had twenty-five degrees of exophoria with a noncomitant left hyperphoria twenty-three degrees due to a definite right superior rectus paresis. Shortening this tendon caused complete disappearance of both deviations as shown by maddox tests.

At this place I wish to make a point in the diagnosis which was not emphasized in the paper. When such patients fix the light in downward rotation the eyes usually come parallel, as shown by the light reflections centering in each pupil. On upward rotation the deviating eye takes its lateral position and is higher than the other.

A complicating feature of these cases is the frequency with which the eye with the paretic superior rectus is used for fixation, the eye with the normal muscle squinting. When it is suggested that operation be done on what the parents or patient think is the good eye, the "ruction is on." It took me three years to persuade the father of the little girl mentioned above, and he is a medical man.

A third patient upon whom operative procedures have just been finished had as his first complaint "terrific headaches." His tests showed esophoria nine degrees before monocular occlusion, which caused in-

stant stoppage of the pain. His condition finally settled to hyperphoria three degrees, and to lateral orthophoria. Prism three degrees, divided equally, was ordered, with no return of headaches. A refractive error of cylinder one diopter in each eye was ignored at this trial of prisms, proving that the sole cause of his symptoms was the hyperphoria. After wearing the prisms, only three degrees of the original esophoria returned. Consequently I do not agree with Doctor McCool on the point of lenses during vertical deviations, and must repeat that the true state of affairs can only be found by monocular occlusion.

When should squints be operated?

For many years I have been doing these operations as close to the third birthday as possible, with some as early as the middle of the third year, provided, of course, that corrective lenses have failed to straighten the eyes. The eyes *must be parallel—a mere reduction in the degree of squint being worthless from the standpoint of binocular vision*. This point I explain carefully to the parents. In this connection I wish to make the positive statement that I have never seen eyes come parallel with correction, unless they did so as soon as it was put on or, at least, as soon as the effect of the atropin is off. Therefore, if one is certain of the accuracy of his correction, there is no need to wait for years or to make many examinations and changes in prescriptions.

I am now of the opinion that the interests of the vast majority would be best served by operating as soon as the squint appears and with one year as the lower limit. To my viewpoint this is the only way by which a child can be given a chance to learn binocular vision in a normal manner. By this practice I believe we could prevent the development of the habit spasms and relaxations that appear in accordance with Sherrington's law. My shortening can do no harm and, of course, tenotomies would be out of the question in such small children. I am aware that some unnecessary operations would be done but, as Deaver used to say about immediate appendix operations, "The thing that is best for the greatest number is the thing to do."

As to tendon transplantation. I have worked out two variations of transplantation for abducens palsy. One is the use of the pair of muscles complete instead of the outer halves. I have done this operation five times, but in two of the patients marked vertical deviations were produced which makes me prefer the second method. This is a transplantation of the *inner* three-fourths of the vertical recti, *under* the uncut outer fourth, to the externus. By this procedure all of the tendon is external to the median plane of the eye, thus increasing the chance of securing outward rotation, and there is no tension against the anchoring suture such as occurs when the inner portion is left in place. I recently operated, for Dr. Otto Barkan, both eyes of a congenital bilateral abducens palsy by this method, with results satisfactory even to the patient.

The possibility of operating for triple effects was not mentioned in the paper. This is to be considered when a worthwhile amount of cyclophoria is present. For instance, if an operable case of esophoria shows plus cyclophoria and hyperphoria in one eye, a shortening of the lower margin of its externus tends to give a triple correction. Similarly in a case of exophoria with plus cyclophoria and hyperphoria in one eye, a tenotomy of its externus, *except its lower margin*, tends to secure a triple effect. Many times I have been successful in these cases.

I have said nothing about the tests and methods of establishing a diagnosis because the paper left nothing to add. I am sorry that the comments on monocular occlusion were so lukewarm in its favor, because its use in about twenty-five hundred people makes me certain of its value as I am of the need for cycloplegics in refraction work. In fact, I could get



along much better without the latter, if forced to give up one of the two.

The lesson to be learned from this paper is that muscles must not be operated by rule of thumb methods such as, "advance the externus and cut the internus." Operators *must learn* that "rough stuff" is entirely out of place in a *delicate surgical procedure that aims to parallel the visual axes*. Muscle surgery is just as much a specialty in itself as plastic or neurologic.

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HANS BARKAN, M. D. (490 Post Street, San Francisco).—Doctor McCool's excellent summary of methods of diagnosis of the 'phorias and 'tropias needs no comment. It is logical, definite and to the point, and the beginner in ophthalmology could do no better than to systematically follow the routine he outlines.

We are also advocates of early operation, provided that a reasonably quick, satisfactory result is not obtained by glasses, fusion exercises, etc. Since adopting Doctor O'Connor's operative method we find that operation can be performed at early ages. No harm can be done and an opportunity for fusion training is obtained early in life. I would caution, however, to remember that the swing of the pendulum frequently goes too far in one direction and not to forget the many good results obtained in previous years by occasional carefully performed tenotomies and by systematic occlusion, glass-wearing, and exercises over longer periods. We have repeatedly seen third degree fusion established in children with no binocular vision before operation, when operated upon and trained afterward, even at the ages of seven to nine years, so that to obtain this desirable result it is not *always* necessary to operate at a very early age, although many times desirable, seldom meeting with any difficulties. The O'Connor operation, as such, we adopted as the most perfect mechanical means of straightening eyes at any age. With such perfect mechanical means the results have been highly satisfactory.

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Doctor McCool (Closing).—In reply to Doctor O'Connor's criticism of the recession operation, I should like to say that if the sutures are placed so that they do not pierce the sclera, and only include the superficial fibers, the operation is perfectly safe and effective. One need not fear a loss in converging power unless the tendon insertion is set back too far. It is easier to do and, I think, quite as effective to use three mattress sutures of fine silk and insert them in the thick scleral tissue around the old stump of the tendon.

I do not think that convergence is weakened to any greater extent than it would be by the two-stage operation, and the advantage of one operation over two is not to be lightly considered.

The point brought out by Doctor O'Connor about the difficulty of persuading the patient that at times the eye that deviates is the wrong one to operate upon, is important. Of course we know that this is due to the well-known fact that patients prefer to fix with the paretic eye to make diplopia less disturbing.

The citation of one case of hyperphoria made comfortable by vertical prisms does not disprove my statement that there are certain cases of hyperphoria dependent upon ametropia and that these will disappear when the refraction is properly corrected.

With reference to the age at which operation should be performed, I think that Doctor O'Connor and I are in accord, with this exception: I do not believe that if the eyes do not become straight as soon as the glasses are worn and the atropin wears off that they will not become straight without operation. I believe glasses should be worn at least a year before we can say with certainty that they will not cure the squint.

## THE RELATION OF PATHOLOGY TO LEGAL MEDICINE\*

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IT is my purpose to contrast briefly the status of legal medicine in Europe and America; to show the close relationship to pathology and to propose a scheme for the organization of an active department of legal medicine in the medical schools of the country, using as far as possible the existing conditions.

I take my definition of legal medicine from Draper's textbook: "Legal medicine is that department of medicine which teaches the application of every branch of medical knowledge to the needs of the law, whether civil or criminal."

### THE CURRICULUM AND LEGAL MEDICINE

Having this definition in mind, it is obvious that every physician, whether he be a general practitioner, a specialist, or a laboratory worker, will have use for legal medicine in his work. Thus it follows that every medical student must be allowed the opportunity to obtain knowledge in the subjects treated upon in legal medicine. If this is true, where shall the student obtain such knowledge? There are those who say that each department in the medical school should consider and teach legal medicine. Let the professor of chemistry teach the detection of poisons, the identification of blood stains. Let the anatomist discuss the identification of human bones, the age and sex and proportions of the body, the effects of exposure and decomposition. Let the surgeon warn against malpractice in treating fractures and dislocations and fully describe knife and gunshot wounds, and automobile injuries. Have the obstetrician discuss the duration of pregnancy, the diagnosis of rape, abortion and delivery. Allow the pathologist to direct attention to the technique of medico-legal necropsies and describe trauma. It has been urged that these subjects be introduced in their proper place in each course, thus covering the field.

The refutation of the above proposals is that in present-day teaching the work is left undone. An instructor in a medical, as in other schools, teaches what interests him. If he dislikes a topic, it is treated briefly or not at all. Then, too, there are many subjects that are not properly placed in any course. Are these to be omitted even if they are as important as medical evidence in court, the identification of bodies, the rights of a physician and patient, and the liability of both?

Another group of critics who oppose a separate department of legal medicine in the curriculum will say that if a physician is well trained and knows his anatomy, chemistry, surgery and obstetrics, if he is honest and tells the truth, that he need not fear attending any court. This is true as far as general knowledge goes, but medical questions assume a very different aspect and

\* From the department of pathology, University of California Medical School.

\* Read before the Pathology and Bacteriology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



reflect new and novel hues when viewed in the glare of the court than if seen in the mild light of the sickroom. Many a case could be recited of a physician well trained, and versed in the latest advances of medical science, who left the witness-stand mortified at the sorry presentation that he had made; a result of inability to prepare the facts for best consideration. Let me cite two notable cases. John Hunter, a man then at the head of his profession, had the finest of training and the soundest of medical knowledge and yet when asked to give evidence for the defense of a man accused of poisoning by cherry laurel water was of so little assistance to his side, and gave such poor answers to the court, that it created a great impression on his colleagues. A probable fortunate result was the establishment shortly after of the first course of legal medicine in Great Britain. On the other side of the picture is the experience of Robert Koch. He was at the time a country practitioner in a very small hamlet in Germany, but he probably had the normal German training in an institute of legal medicine. He was called as expert in a poisoning case and, due to his analysis and medical testimony, attracted such attention that it markedly influenced his career.

Then, too, a different set of observations is needed when the case assumes a medico-legal aspect. Let me remind you of the experience of Sir Astley Cooper. He was called to see a man who had been shot by an unseen person while sitting in a chair in his room. After having done what he could for the patient, he investigated the circumstances as to the direction of bullet, wound, chair, and so on, and came to the conclusion that the man had been shot by a left-handed person. This preliminary observation was enough to start the inquiry in the proper direction and led to the arrest, trial and conviction of the guilty person.

#### A SURVEY OF COURSES IN EIGHTEEN MEDICAL SCHOOLS

With facts such as these in mind, I scanned the catalogues of eighteen of the medical schools in America to ascertain, first, if regular courses in legal medicine had been offered; second, in what department they were taught and by whom; third, the number of hours and the subject-matter covered. Let me give you briefly the results.

Of these eighteen medical school catalogues, fifteen had announcements of courses in legal medicine or in an allied branch. The titles were as follows: Three called it "Legal Medicine"; four called it "Medical Jurisprudence"; two called it "Medical Jurisprudence and Toxicology"; two had no title at all; one called it "Social Hygiene, Criminology and Preventative Medicine"; "Medical Jurisprudence, Hygiene and Preventative Medicine"; "Medical Jurisprudence and Medical Ethics"; and "Medical Law."

The course was taught in a separate department in eight schools, in the medical department in two schools, and in a combination of physiology and physiologic chemistry in one school, and (note this well) in the department of pathology in only one school. Two schools had no data.

Even more astounding was the information concerning the teachers of the courses. Lawyers gave the courses in five schools. Physicians taught it in three schools; and a combination in one school. In one school, a course was given by lawyers and social service workers; in another, by any doctor chosen as a preceptor. The most confusing fact was to find one course taught by a bacteriologist who also taught protozoölogy and water analysis!

The subject-matter presented varied greatly. The following is a partial list: malpractice, relation of the physician and the law, regulation of the physician by law, court procedures, evidence, toxicology, examination of stains, professional rights, liability of physician, insanity, medico-legal postmortems, identity, and many more isolated subjects. Note where the subjects of interest to the pathologist rank in the list.

In addition to the above, let me state that in all the catalogues and references and by personal inquiry, there is presumably not a single medical school in this country where a student may be instructed in the duties that devolve on him when in contact with a crime or accident.

And, furthermore, all the subjects were taught by lecture only. Only one school used demonstrations, and another used its museum. The hours given to legal medicine varied from eight to thirty-two hours. It is usually given in the last year of the medical course.

In this country, we have not a single institute of legal medicine, and we are lacking in journals dealing with subjects of importance in legal medicine.

#### COMPARISON WITH COURSES IN EUROPEAN MEDICAL SCHOOLS

Let us now set against this rather dreary picture the conditions that obtain in Europe, with the exception of England.

With most European countries, the medical-legal institute is a force in the community. It has the status of a department in the university. It has a director who is a medical man and who is usually a pathologist. He has as assistants physicians trained in bacteriology, immunology, chemistry, toxicology, anthropology, and medical law. The institute coöperates with the police, the psychiatric clinic, and the prosecutors. Of the twenty-two European medico-legal institutes that have been covered by my reading, I will give you a complete picture covering the main facts as applicable for the universities in these countries.

The titles of the institutions are usually that of "The Institute of Legal Medicine" of the corresponding university.

Courses are taught in all of them. These range from the usual course of one semester of an average of about one hundred hours to a course of a year's duration and many more hours. These courses are compulsory and the state examination is composed in part of questions on medico-legal subjects. Other correlated courses are given. Graduate students are taken and trained along lines of their choosing. Courses are given to the



law students and graduates. The police are trained for special work in the institute. In some countries a man doing the work of a coroner in this country must have a diploma or certificate from one of these institutes. Close coöperation is had with the other departments in the university, especially pathology, anatomy, chemistry, obstetrics, psychiatry, and so forth.

The courses are taught by the director and his specially trained assistants in a logical way.

The subjects taught vary with the country, but usually comprise the following: medico-legal postmortems; identification of dead bodies; toxicology, especially as regards the symptoms, the postmortem, and the proper handling of specimens; thanatology; violent death; wounds, anthropology, especially of criminals; mental diseases and the law; perversions of sexual instinct; pregnancy, birth, delivery and abortion in their legal aspects; rape, marriage and divorce; compensation and industrial injuries; stains, especially of blood and semen; hair; electropathology; and many others.

These subjects are taught by lecture, demonstration, museum work, and assignment of special problems. Courts and asylums are visited. Necropsies are performed. Every proper pedagogical instrument is used.

However, this does not end the activities of these institutes. They act for the police and hold necropsies on all cases of violent and suspicious death. Likewise, they do the autopsies at the request of the civil sanitary authorities, especially in the case of epidemics. There are many examinations of material outside of their own surroundings, such as hair, stains, and suspected poisons. They examine the circumstances and referee in cases of industrial accidents and hazards. They examine sexual derelicts and cases of criminal abortion. They act as psychiatric investigators. Each institute has its museum, which includes wet and dry specimens, skeletons, skulls and bones, illustrative cases of wounds and injuries, photographs, anthropological specimens, and a large collection of criminal implements.

A library is included in each institute which varies from a few books to five thousand volumes. Here are found also the publications on medico-legal subjects from all the world.

In addition, research is carried on and papers prepared. The subjects vary with the country and the personality of the director. Usually the topics include criminal anthropology, laboratory technique, preventive measures against crime, industrial injuries, or the legal aspects of insanity.

The institute acts as adviser to the judge and courts, and is often called upon to give opinions upon cases having a medico-legal aspect.

There are several societies for the study of the problems of legal medicine, notably in Rome, Vienna, Berlin, and Paris.

#### HOW CAN THE AMERICAN SITUATION BE REMEDIED?

Having shown you these two contrasting pictures, what can be done to remedy the situation in our country and in England?

One of the severest criticisms of the coroner systems of handling medico-legal work is that it has led in no instance to the formation of institutes of legal medicine. We have, in the medical examiner system in New York and Massachusetts, potential institutes. Especially in New York, with a little financial aid, a beginning could be developed about the medical examiner system and the Bellevue Hospital. An attempt has been made in London to start an institute.

In America, we are confronted with three things that hold back the formation of institutes in the medical schools. These are: first, public indifference; second, lack of financial support by the political powers; and third, the coroner system.

The public indifference can only be overcome by showing the necessity for such an institute and by proper publicity. If an institute could be started, however feebly at first, and its qualities in several outstanding cases be proven, the financial aid and the publicity would follow.

The coroner's office is quite another matter. That type of office, with its forms of investigation, is seemingly firmly planted on our political organizations. Although both lawyers and physicians know of its incapacity to function properly, it will take years of work with the public and politicians before a better system can be instituted. However, since a beginning has been made in New York and in Massachusetts, and in 1927 in New Jersey, it may be possible to do it gradually for other states. But we cannot wait for that.

#### A PROPOSED PLAN

I would suggest the following plan to the medical schools, especially those located in the larger urban centers:

First: The appointment of a pathologist as organizer of an institute of legal medicine. This would necessarily, at first, be a part of the department of pathology, since most of the material and laboratory assistance would come from this department.

Second: Allow this director to organize a provisional department, using the personnel of the other departments of the medical school. Each of the departments of medicine, obstetrics, psychiatry, psychology, bacteriology, chemistry, surgery, etc., could loan an interested man to the new institute for as much time as necessary to carry out his part of the program of the institute.

Third: With the advice of the judges and bar association, appoint one or more graduates in law who are interested in legal medicine and who would coöperate on the legal side.

Fourth: Form connections with the police department and offer the services of the institute in their problems, asking in exchange the opportunity of using such of their material for teaching as is necessary.

Fifth: Offer the services of the institute to the coroner's office or ask the coroner to appoint the director or some other representative of the institute on his staff as pathologist.

Sixth: Offer the institute and its facilities to the State Compensation Board, insurance com-

panies and like organizations. They could get unbiased reports which could be a source of income.

The teaching in an institute of this kind could be correlated by the head of the organization. It could be concentrated in a half year, or diffused through several years. The connections made with the police and coroner would allow the students to see the results of accidents and crime. They could get an idea of court procedures and evidence.

A proper course given in the proper spirit would do marvels in overcoming the fear of the average medical graduate for courts and legal people.

As each department would be called upon to teach or decide on a point only infrequently, no great burden would be placed on any department.

The cost to the university would be very small until the work became so onerous as to crowd the department in which the institute was domiciled, but by that time interest probably would have been aroused sufficiently to insure the financing of a proper building.

This scheme, for what it is worth, is offered in an endeavor to fill a need in our medical school curriculum. It is very flexible and inexpensive to start. It requires a properly spirited man to head it. He must be willing to coöperate with various types of people and organizations. He must be willing to start at the bottom, and make sacrifice for the ends to be achieved.

University of California Medical School.

## HEAD INJURIES—THEIR TREATMENT\*

By EDMUND J. MORRISSEY, M. D.  
San Francisco

DISCUSSION by E. B. Towne, M.D., San Francisco;  
Mark Albert Glaser, M.D., Los Angeles.

THE treatment of head injuries will be limited in this paper to the immediate treatment, but in the short time allotted it will be possible to discuss only a few of the essential points.

In the treatment of head injuries it is most important to remember that we are chiefly concerned with the amount of cerebral contusion, that is, brain damage and not the fracture *per se*.

It is not uncommon to see patients who have long linear fractures in which there is little evidence of brain damage and, on the other hand, patients with severe cerebral contusion and with no demonstrable fracture.

### ROENTGEN-RAY EXAMINATION

For this reason it is a mistake to order the average patient who has had severe intracranial trauma for x-ray examination because: first, these patients as a rule are suffering from shock; second, as stated before, we are interested in treating the brain damage and not the fracture, unless the fracture is depressed, in which case the diagnosis as a rule may be made without

x-rays; and third, if the patient presents evidence of intracranial hemorrhage the selection of the operative site will be determined from the clinical and not the x-ray findings.

From the foregoing the writer does not wish to convey the impression that x-rays of the skull are not necessary. On the contrary, they are very important as they help in the prognosis, are an added indication of the severity of the blow received, and occasionally show depressed fractures that cannot be found on clinical examination, and by means of a pineal shift one may diagnose an intracranial hemorrhage.

As regards the x-ray examination of head injuries the following conclusions may be drawn:

First: A certain small percentage of fractures cannot be shown by x-ray examination.

Second: One is not justified in making a diagnosis of no fracture of the skull from only one or two, or even three, x-ray views. To reach a proper conclusion it is necessary to have at least lateral plates of each side, frontal and occipital, preferably stereoscopic views. Even this is not sufficient, as the writer has had a series of cases in which only by taking mastoid plates was it possible to demonstrate fractures of the petrous portion of the temporal bone. In fact this has occurred with such relative frequency that at present mastoid plates are included in our routine examination of the skull in acute head injuries. This is especially true if there is a history of bleeding from the external auditory meatus.

Third: The extent of the fracture cannot be determined by x-ray examination. At either operation or postmortem examination that which often appears as a short linear fracture in the x-ray plate will be seen to extend a much greater distance.

*Prognosis.*—In fractures extending across the cribriform plate into ethmoid cells and associated with the escape of cerebrospinal fluid, the prognosis is poor. In fractures extending through the petrous portion of the temporal bone and resulting in bleeding or the discharge of cerebrospinal fluid from the external auditory meatus, the prognosis is fair.

The reason for the prognosis being so much worse in fractures through the cribriform plate and ethmoid cells is due to the presence of pathological organisms in the sinuses and nasal cavities, which either by direct extension or especially by the explosive force of coughing or sneezing enter the subarachnoid spaces and so causing a meningitis or cerebral abscess.

For this very reason irrigation or spraying of these cavities in the presence of cerebrospinal fluid drainage is extremely dangerous and should not be done.

### INTRACRANIAL PRESSURE

The major problem in the care of head injuries after recovery from shock is the treatment of increased intracranial pressure.

As a rule two conditions contribute to this increased intracranial pressure:

First: Brain edema, which is the cause in at least 90 per cent of the cases.

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Second: Brain displacement due to a large hemorrhage, either extradural or intradural, or both.

What is the cause of this first condition, namely, brain edema? There are several explanations. The one that appeals to me is that tissues deprived of oxygen take up fluids.

Now in acute intracranial injuries we have the rupture of many blood vessels of varying size and thromboses of others with the result that a considerable amount of brain tissue is deprived of oxygen. Hence the consequent brain edema which is often sufficient to cause increased intracranial pressure.

*Physiology of Increased Intracranial Pressure.* In order to treat head injuries properly the writer believes it is essential that the pathological physiology of cerebral compression be understood. This may be divided into four stages:

In the first stage, compensation takes place by some of the cerebrospinal fluid being forced out.

The second stage is ushered in by a further rise in pressure which causes a blanching of the veins and a blocking of the subarachnoid spaces. Here the symptoms are headache, restlessness, irritability, nausea and vomiting.

The third stage is characterized by a degree of pressure which results in medullary compression, thus depriving the circulatory centers (vagus and vasomotor) and respiratory center of their proper blood supply. The circulatory centers are thus stimulated, which results in a slowing of the pulse, a constriction of the splanchnic vessels and consequent rise in blood pressure. To sum up this third stage clinically, we have a slowing of the pulse followed by a rise in blood pressure and by slow stertorous respirations. All this is due to the response of the circulatory centers to the cerebral anemia.

The fourth stage is in evidence when the pressure is so great that it cannot be overcome, and circulatory failure ensues. This is characterized by fall in blood pressure, rapid thready pulse, deep stupor, and dilated pupils. I might add that in this terminal stage relief of pressure is of no avail.

From the foregoing it can be seen that we should watch every patient who has given a definite history of head injury for the following signs and symptoms: headache, irritability followed by stupor, nausea and vomiting, slowing of pulse and respirations, and rise in blood pressure or pulse pressure.

#### TREATMENT

The treatment of generalized increased intracranial pressure may be accomplished by either: (1) Hypertonic solutions. (2) Spinal puncture with drainage. (3) Decompression.

*Hypertonic Solutions.*—The use of hypertonic solutions for the relief of increased intracranial pressure has been in use since Weed and McKibben in 1919 reported their experimental results with hypertonic and hypotonic solutions. The two solutions usually used are sodium chlorid and magnesium sulphate.

A hypertonic solution of sodium chlorid intravenously causes a rapid drop in cerebrospinal fluid pressure and brain volume, and is a fairly valuable adjunct. Nevertheless, it has its disadvantages because it is dangerous on account of its toxic effect and must be given slowly, and because there is a secondary wave of edema following its injection. This secondary wave is due to the cells' becoming hypertonic after fluid has been withdrawn, with the result that they again absorb fluid.

Hypertonic solutions of magnesium sulphate by bowel was advocated by Dowman in 1922 and Fay in 1923 and 1924. Following the favorable reports of these men the writer tried it extensively when he was with C. C. Coleman, but not meeting with the same success he carried out various experiments, the results of which may be summed up as follows:

It appears that the brain tissue is subject to the same dehydrating effect of magnesium sulphate as the other tissues of the body and that cerebral dehydration is accomplished slowly and to a slight degree, but the effect of this drug is inadequate and should not be relied upon for the reduction of acute intracranial pressure.

Of late the writer has been using a hypertonic solution of glucose intravenously (usually a 25 per cent solution) and finds that it is of marked value. It is useful not only for its dehydrating effect but also for its value as a food, which is rather essential in those patients who remain in a semiconscious state for several days.

The amount which was given varied from 250 to 500 cubic centimeters. The one thing essential to remember is that it should be given *very slowly*.

*Spinal Puncture with Manometer Readings and Drainage.*—With acute increased intracranial pressure without localizing signs, relief can be obtained early and safely by lumbar puncture and drainage. The relief obtained in this way prevents medullary compression, the symptoms usually indicating operation. Spinal puncture should always be done with a manometer attached, of either a mercury or a water type. The routine to follow, if the pressure is over 10 centimeters of water, is to withdraw sufficient to reduce it to this level.

The danger attached to spinal puncture in acute pressure is practically nil. I have never seen a death in over four hundred cases. Of course in chronic increased pressure I am greatly opposed to spinal puncture. Schoenbeck, in a review of deaths following lumbar drainage, collected seventy-one cases, and in sixty-seven found, by autopsy, tumors or other chronic brain conditions. The accidents are due to pressure on the medulla by the walls of the foramen magnum or occasionally to hemorrhage into the tumors because of sudden release of tension on the vessels.

The reason that spinal drainage is so advantageous is due to the fact that the lateral ventricles normally contain about 30 cubic centimeters of fluid, the cisterns 60 cubic centimeters, and



30 to 60 cubic centimeters are contained in the spinal portion. Thus 120 to 150 cubic centimeters is taken up by fluid, part of which may be removed.

*Subtemporal Decompression.*—Subtemporal decompression should be used in those patients who present evidence of localized brain lesion caused by hemorrhage and in those patients who are not relieved by spinal drainage or in which, in spite of repeated spinal drainage, the pressure remains up for several days.

Of equal importance with the observation for signs of increasing intracranial pressure is the frequent neurological examination of the patient. It is only by this means that one is able to distinguish between localized laceration or contusion of the brain and extradural hemorrhage. Extradural hemorrhage occurred in less than five per cent of my cases, yet the diagnosis is extremely important, as it is one of the few conditions occurring in head injuries in which immediate operation is the only treatment. The prognosis is very favorable provided the diagnosis has been made and patient operated.

The typical picture of middle meningeal hemorrhage, which forms over 90 per cent of the extradural hemorrhages, is: first, an initial period of unconsciousness due to the cerebral contusion following the blow; second, a lucid interval followed by slowly oncoming stupor with signs of generalized pressure and localizing signs manifested by gradual progressing weakness of the muscles of the face, arm and leg of opposite side and, as a rule, dilatation of the pupil on the same side as the hemorrhage.

However, if we wait for this typical picture we are going to overlook many cases of extradural hemorrhage that might have been saved by surgery. LeCount, following autopsies in five hundred cases of deaths following head injuries, states that over 25 per cent of the extradural hemorrhages are overlooked. For example, if the head injury is severe we may have no lucid interval on account of the overlapping of the initial period of unconsciousness due to the contusion and the unconsciousness, the result of pressure from a large cerebral hemorrhage.

The time element is all important, that is, whether the neurological examination shows a progressive lesion. If the muscle weakness or paralysis appears coincident with the blow and remains practically the same, then we have localized cerebral contusion, and operation as a rule does more harm than good. On the other hand, if the examination shows a progressing lesion, then we are fairly certain of an extradural hemorrhage, and in these cases immediate operation is imperative. It must be remembered that it requires a definite time for sufficient hemorrhage to occur from a torn middle meningeal artery to produce symptoms.

#### SUMMARY

1. The treatment of patients with mild cerebral contusion with or without fracture is: absolute rest in bed; careful observation for two or

three days; ice cap to head; soft diet; freedom from cerebral stimulants such as tea, coffee, and alcohol; and small doses of some nerve sedative such as luminal or bromids. The prognosis in these cases is very good and as a rule the patients show none of the usual post-traumatic symptoms.

2. The more severe cases of severe cerebral contusion are to be treated for shock, if present, with maintenance of careful observation for signs of increasing intracranial pressure as shown by slowing of pulse and respirations and increase in blood pressure or pulse pressure. If there is any evidence of increased intracranial pressure, spinal drainage should be performed, with the patient in the horizontal position. This should result in relief of pressure symptoms. If signs of pressure again manifest themselves, spinal drainage should be repeated. If it is found that the pressure cannot be controlled by spinal drainage, then a subtemporal decompression should be performed. In these patients the prognosis is fair. As a rule they present the usual post-traumatic head symptoms such as headache, dizziness, irritability, and nervousness, for a period lasting three to twelve months following the injury.

3. A diagnosis of intracranial hemorrhage should be made in those patients who present signs of increasing intracranial pressure and in whom the neurological examination reveals a progressing lesion. Especially is this true if there is a history of a period during which the patient was free from symptoms following the head injury. These patients should be operated without delay. If operated in time the prognosis is good.

4. Operation is futile in those patients in whom symptoms and signs of great cerebral contusion are present, as evidenced by: first, high temperature; second, bloody cerebrospinal fluid; and third, early evidence of medullary failure.

5. Depressed fractures should be elevated as early as the condition of the patient will permit and devitalized brain tissue should be removed.

Finally, every patient with a history of unconsciousness following a head injury should be kept in bed at absolute rest for at least four weeks, then allowed up only if all symptoms such as headache and dizziness have disappeared. Should any of the symptoms return when patient is ambulatory, absolute bed rest is again indicated.

Adherence to the above procedures will greatly reduce the incidence of post-traumatic head symptoms. The prevention of the disabling sequelae should be one of the chief aims in the treatment of all head injuries.

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#### DISCUSSION

E. B. TOWNE, M. D. (350 Post Street, San Francisco).—It is impossible to discuss more than a few points in Doctor Morrissey's concise and comprehensive presentation of this subject.

He recommends the intravenous use of 25 per cent glucose in amounts varying from 250 to 500 cubic centimeters. I agree that glucose is by far the best hypertonic solution, but prefer a 50 per cent solution. On several occasions patients who have not responded to the weaker solution have shown prompt improvement following the use of 75 to 100 cubic centimeters of the stronger.



I am in complete agreement as to the desirability of spinal puncture in these cases, both for prognosis and treatment. My conception of the physiology and pathology of increased spinal fluid pressure is as follows: The cerebrospinal fluid has a circulation of its own. It is secreted by the choroid plexi of the ventricles, passes out of the ventricular system into the subarachnoid space and is absorbed back into the venous system mainly through the pacchionian granulations near the sagittal sinus. With edema, due to lacerated brain, there is an increase in the bulk of the brain tissue and this interferes with the circulation of the fluid, but secretion goes on without interruption. Therefore there is an increased amount of cerebrospinal fluid in the subarachnoid spaces, and drainage relieves this situation. Sometimes there are lacerations of the arachnoid membrane, so that the fluid gets into the subdural space, where no fluid belongs, and it is in these cases that spinal puncture gives a temporary favorable result with rather early recurrence of the symptoms of pressure. This condition calls for drainage by way of a subtemporal craniotomy.

Operation, aside from the elevation of depressed fractures, is indicated for the condition just described, for intracranial hemorrhage, and in certain cases showing evidences of localized brain injury in which the history is so deficient that it is impossible to be sure whether the signs, a partial hemiplegia, for example, came on immediately after the injury or some hours later. In the first case the pathology is localized laceration of the brain, and in the second it is probably hemorrhage. I do not hesitate to explore in such a situation, as a negative exploration is entirely harmless and one cannot afford to run any risk of overlooking a middle meningeal hemorrhage. Operative procedures are, therefore, designed to remove something, either trapped cerebrospinal fluid or blood-clot, and to afford drainage. Doctor Naffziger called attention to this fact years ago. I object to the word "decompression" as applied to these operations, for it intimates that a defect is being made in the skull and dura to relieve increased intracranial pressure, and it is my experience that such decompressions are worthless in the treatment of injuries of the brain.

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MARK ALBERT GLASER, M. D. (1118 Roosevelt Building, Los Angeles).—Doctor Morrissey has given us an excellent résumé for the treatment of head injuries. Brain injury in the majority of the cases is far more important than skull damage. Nevertheless, when the skull fracture involves the orbit, cribriform plate, frontal sinus, mastoid, petrous portion of the temporal bone, or the foramen magnum certain sequelae may occur which require specific treatment. The patient with acute head injury is usually in shock and, as Doctor Morrissey has mentioned, shock treatment is far more essential than early x-rays.

Acute increased intracranial pressure arises from either brain edema or brain hemorrhage. These we must differentiate. If brain hemorrhage is present and the symptoms increase, operative intervention is necessary. If the symptomatology is caused by generalized brain edema, dehydration methods are instituted. It is extremely important to record blood pressures every twenty to thirty minutes, and pulse every ten to fifteen minutes for the first twenty-four to thirty-six hours. It has been my custom in acute head injuries to use 50 cubic centimeters of 50 per cent glucose intravenously every four to six hours, depending upon the symptomatology of the patient. In addition, I have found it quite advantageous to reduce the fluid intake to 600 cubic centimeters. This reduction of fluid intake may be safely carried out for two to three days—the usual length of the critical period. Magnesium sulphate retention enemas may also be used in conjunction with the above dehydration methods. By following this scheme, I have rarely carried out a subtemporal decompression and have reduced the use of spinal puncture to a minimum. Some neurological surgeons feel that bloody

spinal fluid should be drained to prevent blockage of the subarachnoid space. In my experience, cases do well without this form of therapy. I do not carry out routine spinal puncture, but utilize it only when other methods of dehydration fail.

If a subtemporal decompression is carried out for acute brain edema, it is important to place a rubber drain in the subarachnoid space so as to permit drainage of the cerebrospinal fluid. The amount of fluid lost by drainage is far more efficacious than the small space increase afforded by a decompression.

Patients receiving a severe cerebral concussion form the greatest percentage of head injuries. These patients, in addition to being the most frequent, present the greatest number of symptoms and prolong such symptoms as headaches, "giddiness," nervousness, irritability, and mental changes over longer periods of time. These patients are frequently considered malingers, whereas in reality their cerebral damage is extensive.

Cerebral concussion causes punctate hemorrhages within the brain substance which may later result in arachnoid adhesions or ventricular distortion. Many of these can be clearly demonstrated by encephalograms, or a vestibular examination. Rest, sedatives, or the injection of air are the therapeutic measures of choice. Improper treatment of these cases not only prolongs the disability, but aids greatly in establishing post-traumatic symptoms.

I find otoscopic examination more important than ophthalmoscopic examination. Of course, one would not look into an ear with free-flowing blood, but if blood is absent externally, the otoscope examination frequently reveals a few scales of dried blood with a ruptured tympanic membrane, or a bluish-green membrane discolored by hemorrhage posteriorly. This naturally would presuppose a basal skull fracture.

Vestibular examination is of great value. By means of these tests, the drainage of the eighth nerve can be determined as well as central brain damage.

The treatment of head injuries is complex. One could talk for hours without covering the entire subject, but I certainly wish to congratulate Doctor Morrissey upon the concise and practical presentation of his paper.

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DOCTOR MORRISSEY (Closing).—I wish to thank both Doctor Towne and Doctor Glaser for discussion of my paper, as in so doing they added important points that it was impossible for me to bring out in the time allotted.

## NEPHROPTOSIS—ITS DIAGNOSIS AND TREATMENT\*

By JAY J. CRANE, M. D.  
Los Angeles

DISCUSSION by William E. Stevens, M. D., San Francisco; H. A. Rosenkranz, M. D., Los Angeles.

SINCE most of the surgery of today upon the genito-urinary tract is being done to relieve urinary stasis, the most common predisposing cause of urinary infection and kidney destruction, the writer wishes to demonstrate that abnormal renal mobility produces urinary stasis and that such a stasis can, in the majority of cases, only be relieved by renal suspension.

Because a few years ago overenthusiasm for the surgical procedure of kidney fixation was general and because suspensions were done on all provocations, with many failures, is not sufficient

\*Read before the Urology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



reason to condemn the operation today as a means of offering relief to those who suffer as a result of urinary stasis due to this cause. Especially is this true when we consider the improved urological instruments at our command at this time, which can be of aid in making our diagnosis. With our modern facilities we can accurately demonstrate floating kidneys as well as determine the nature of infection and the degree of kidney destruction. This information was not at the command of all surgeons a generation ago. Thus many an anchored kidney did not relieve the symptoms which were due to pathology located elsewhere. The operation, therefore, fell into disrepute only to be revived and used now in selected cases and not as a cure-all procedure. The writer believes the pendulum is swinging from the ultra-conservative surgeon who fails to provide any form of treatment for these patients to those who believe, as do most of the modern-day urologists, that renal destruction caused by abnormal kidney mobility often can be prevented by applying our present-day diagnostic methods and treatment. The writer is not advising that every floating kidney found be anchored. He is only asking that the patients in whom there is objective evidence of a lesion, the result of nephroptosis as told with the cystoscope and x-ray and whose pain is reproduced by pyelograms, be suspended surgically or treated palliatively to relieve the urinary stasis and the resultant symptoms. Therefore, in this paper I shall limit myself to acquired kidney displacements as found to be the cause of urinary stasis by the aid of the cystoscope and x-ray.

#### SYMPTOMS

To mention all of the various symptoms that have been attributed to renal mobility is beyond the scope of this paper. It is sufficient to say that the symptoms may or may not be directly referable to the kidney. Frequent attacks of cystitis, as the result of a primary kidney infection with pain of an aching character over the affected side, have been by far the most pronounced individual symptoms.

Gastro-intestinal symptoms such as indigestion, constipation and pain over the areas of the gall-bladder and appendix were frequently encountered in these patients. In fact, so marked were these symptoms in some cases that the patients had had one or more intra-abdominal operations without relief of the symptoms. Nervous symptoms from insanity requiring hospital confinement down to simple hysteria were noted in a few instances. The former usually were greatly improved when the kidney was held in place permanently.

Because there are many cases of renal mobility in which the kidneys cannot be palpated we have come to depend more upon the x-ray findings, with the patient in the erect position, and the kidney pelvis and ureter filled with an opaque solution, than we have on palpation to determine the exact location of the kidney. By this means we also have been able to determine the degrees of hydronephrosis present, since that complication is a major indication for suspending the

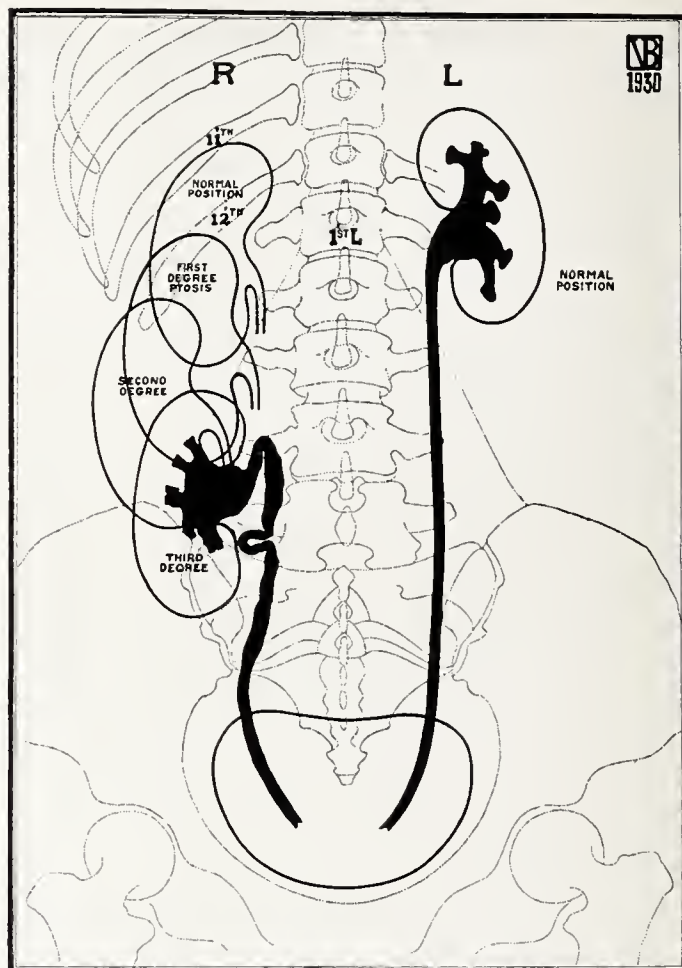


Fig. 1.—Schematic drawing showing the degrees of ptosis of the kidney.

kidney surgically. The schematic drawing shows the degrees of kidney mobility:

1. First degree when the pelvis rests opposite the third lumbar vertebra.
2. Second degree when the pelvis rests opposite the fourth lumbar vertebra.
3. Third degree when the pelvis rests opposite or below the fifth lumbar vertebra.

#### DIAGNOSIS

The diagnosis is made upon the subjective symptoms and the finding sometimes by palpation of a freely movable kidney, plus the objective evidence of pathology as demonstrated with the x-ray and cystoscope and the reproduction of the pain by injection of pyelographic fluid. It must be remembered in this connection that a floating kidney may also be tuberculous and for this reason careful urinalysis must be done on every case.

The roentgen ray and pyelograms will usually demonstrate calculi or newgrowths. Renal ectopia or the congenital condition, in which the kidney is held in an abnormal position by anomalous blood vessels, must not be confused with the acquired floating kidney because the ectopic kidney cannot be put into a normal position on account of its anomalous blood supply. To further rule out ectopic kidneys the routine prone and upright pyelograms will usually demonstrate whether or not the kidney will return to its normal position before treatment is introduced. Of course, gastro-



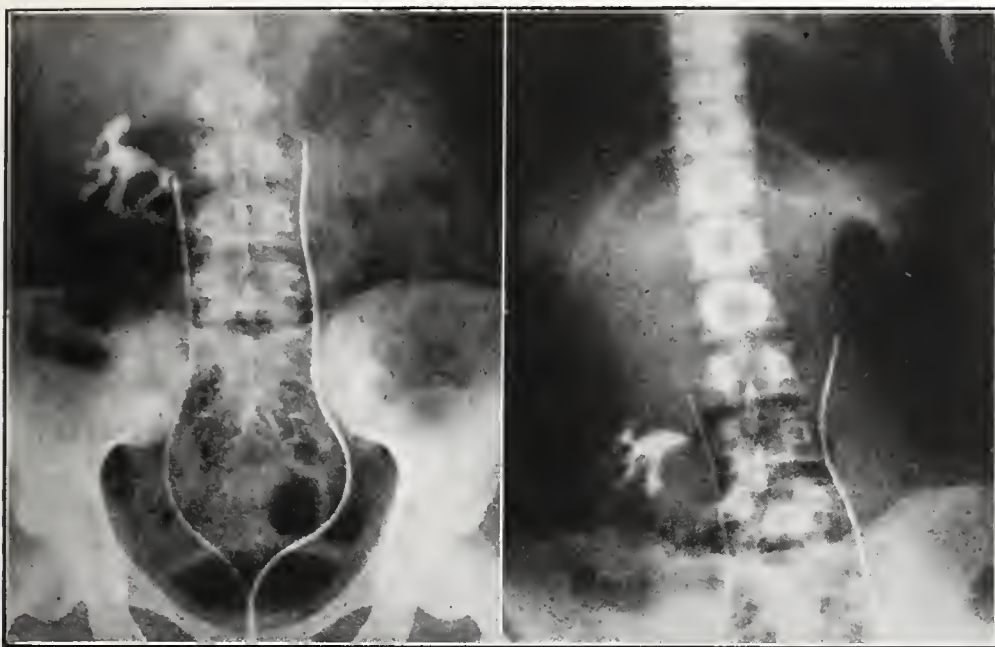


Fig. 2 (Case 4).—Third degree ptosis with twisting of ureter. Prone and standing positions.

intestinal pathology must be ruled out by routine studies. However, a motile kidney may exist in conjunction with gastric or duodenal ulcers as well as with any other pathological condition within the abdominal cavity. When such occurs it becomes necessary to determine which condition is responsible for the major symptoms. This latter can only be accomplished by the most careful, unbiased observation which includes a complete kidney study.

#### TREATMENT

The treatment consists of palliative and operative measures. The writer believes that all kidneys of a second and third degree ptosis should be surgically suspended, unless there is some contraindication which would prevent any semi-elective operation being done upon the patient, leaving the palliative treatment for the mild cases in which the abdominal supports completely relieve the symptoms.

On these points B. A. Thomas states:

"Palliative treatment is indicated in mild cases, particularly those associated with general visceroptosis, when, in a life of leisure, the subjective symptoms are relieved by rest or abdominal supports, when by periodic urologic check-ups there is no development or progression of hydronephrosis or infection; also in severe neurasthenia with no symptoms referable to the

kidneys, although Suckling and Billington have reported many cases of insanity cured by fixation.

"Palliative treatment is contraindicated: (1) when any subjective symptoms, even in the presence of general visceroptosis, are not completely relieved by supportive appliances; (2) when the threat of renal damage from urinary retention (hydronephrosis) and infection is uncontrolled by apparatus; (3) when severe pyelitis, pyelonephritis, pyonephrosis, calculus or tumor coexist; (4) when a rotation of the kidney, torsion of the pedicle or

fixation of a kinked ureter is present; (5) when harmful traction is exerted on other organs, as on the stomach, intestines, and liver; (6) when the kidney is movable to more than the first degree; (7) when residence in a foreign or uncivilized country becomes obligatory; and (8) when the patient is a manual laborer or in indigent circumstances."

The surgical technique we have been using is that described by Kelly and Burnam. It consists of fixing the kidney by way of the lumbar route, well up under the twelfth rib by direct suture with No. 3 chromic catgut. The posterior kidney surface is likewise fixed to the lumbar muscles with the same suture material. Three sutures are usu-

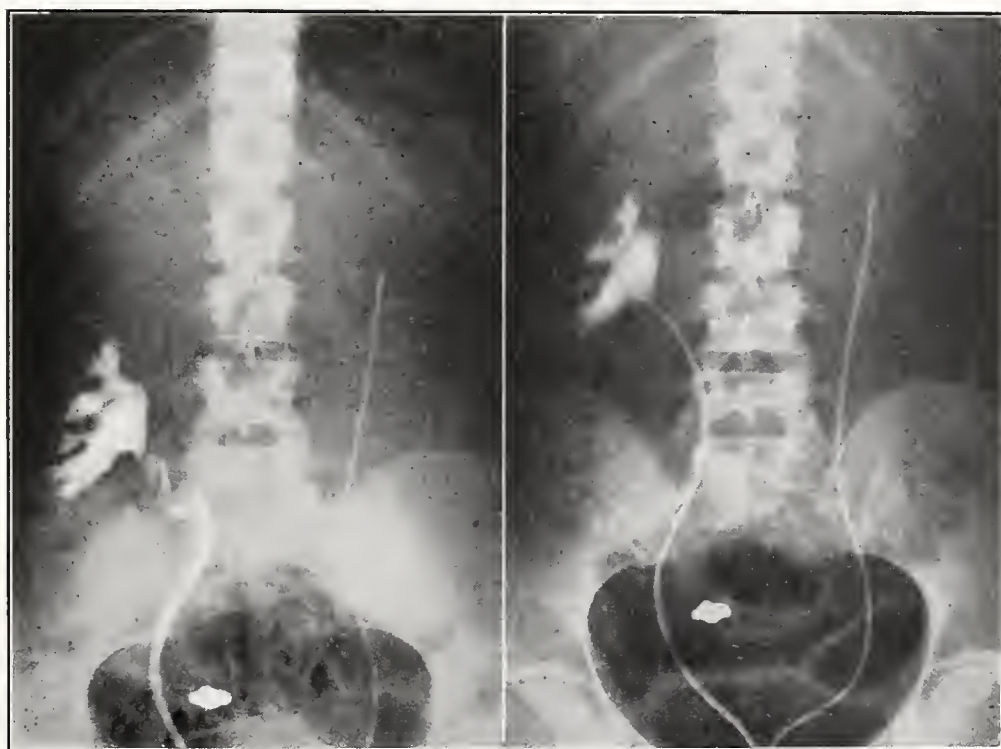


Fig. 3 (Case 28).—Third degree ptosis of the right kidney. Shown in prone and standing positions.



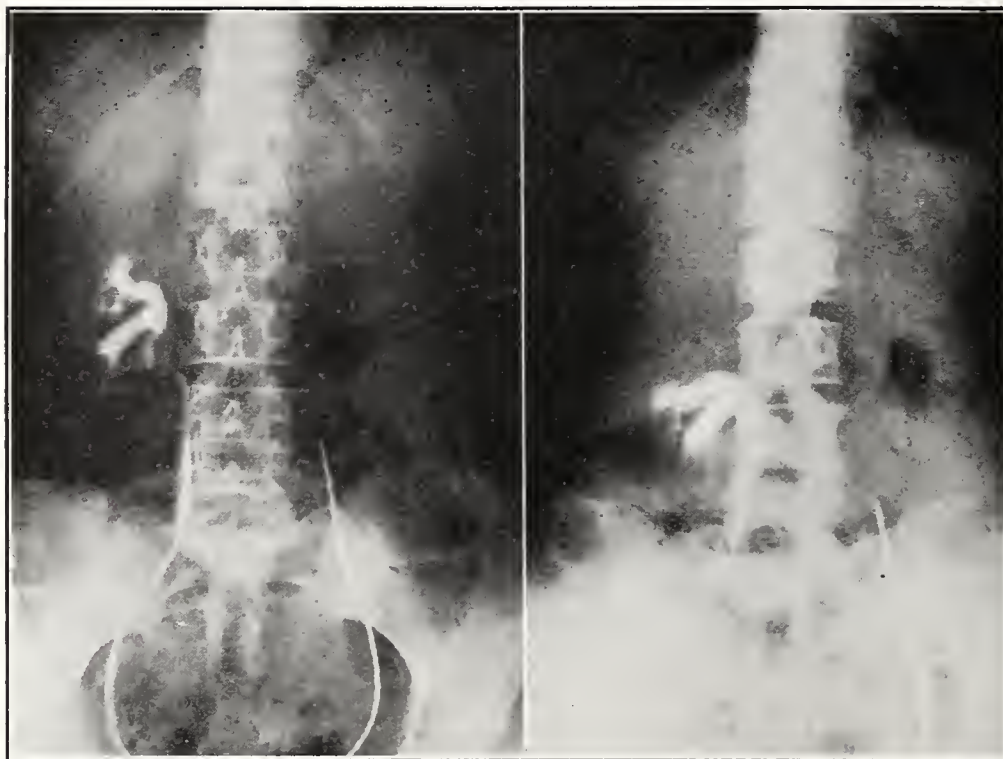


Fig. 4 (Case 41).—Right kidney easily palpable as a tumor mass in midline of abdomen. Also note low position of kidney in prone position.

ally employed between which the capsule of the kidney is split and stripped back for a short distance.

Westlake Professional Building.

#### DISCUSSION

WILLIAM E. STEVENS, M. D. (870 Market Street, San Francisco).—The fact is not generally recognized except by urologists that nephroptosis is a very common condition, especially in women. Subjective symptoms are not infrequently absent notwithstanding the presence of marked displacement of the kidneys and kinking of the ureters. The majority of patients, however, complain of pain and frequent urination. A review of eighty of our cases of nephroptosis showed that the number of patients complaining of pain in the upper or lower abdominal quadrant was about equal to those with pain in the lumbar region. Some of our patients had also undergone abdominal operations because of gastro-intestinal symptoms. Kinking of the ureter was found in 58 per cent of these eighty patients. It occurred on the right side in 70 per cent, on both sides in 20 per cent, and on the left side only in 10 per cent. Blood was found in the urine in 27 per cent. Nine per cent complained of gastro-intestinal symptoms.

Nephroptosis without a kinking of the ureter is sometimes responsible for pain and gastro-intestinal symptoms.

A correct method of examination is important in order to determine the presence of nephroptosis and ureteral kinks. If the symptoms are due to nephroptosis and ureteral kinks, the operative procedure indicated for their relief and, lastly, the probability of cure. After insertion of opaque ureteral catheters we usually obtain stereoscopic pictures with the patient in the flat position. Following injection of the kidneys stereoscopic pictures are taken with the patient in both flat and Trendelenburg positions. These films are then developed and if satisfactory the kidneys are again injected, the catheters withdrawn and pictures obtained with the patient in the upright position. It is a good plan to take the last picture ten minutes later in order to ascertain if the kidney pelvis have completely emptied. O'Connor has recently emphasized the importance of the emptying time of the pelvis as an indication of the type of procedure to be employed in the treatment of these cases.

regardless of location, is indicated in all properly selected cases.

H. A. ROSENKRANZ, M. D. (1024 Story Building, Los Angeles).—I have followed with much interest at the Los Angeles County General Hospital the large series of nephropexies that Doctor Crane has performed and feel that he has done much to bring back to its proper place in the southland the operation of nephropexy and the allied procedures so aptly emphasized by Doctor Stevens. Doctor Mathe's excellent monographs on this subject during the past seven years are also to be commended for influencing the good resulting from this operation. Influenced by Israel of Berlin, who used to do only about three suspensions per year, I long ago adopted a conservative attitude toward this operation. Results obtained during the past few years have, however, shown me definitely that I have been too conservative.

As regards palliation in selected cases I may mention a physician with extreme third degree bilateral nephroptosis who has played golf regularly for four years with the aid of a suitable support.

I would like to emphasize the value of doing a suspension on almost all kidneys that are operated upon in which it has been necessary to so thoroughly free the organ that its natural supports have been severed.

#### THE INTERNAL RING IN OBLIQUE INGUINAL HERNIA\*

By ALBERT R. DICKSON, M. D.  
Los Angeles

DISCUSSION by W. S. Kiskadden, M. D., Los Angeles;  
O. O. Witherbee, M. D., Los Angeles.

IT may seem to some that it is a waste of time to bring up for discussion a subject apparently so well settled and standardized as that of oblique inguinal hernia. The Bassini operation, or some modification, is apparently still the technique selected by the great majority of surgeons for repair of the inguinal canal. Of late the imbrication

\* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 23 to May 1, 1930.

I do not believe that faulty operative technique or the selection of improper cases were the only causes for failure to relieve symptoms, with consequent abandonment of nephropexy after its former period of popularity. Many skilled operators failed to obtain satisfactory results in patients who were apparently ideal for this operation. Vermooten has recently suggested that obstruction in the lower portion of the ureter may be present in some cases. He calls attention to the fact that the latter condition will produce elongation, tortuosity and kinking of the ureter and consequent hydronephrosis.

Doctor Crane is to be congratulated on his excellent results and I agree with him that nephropexy, together with whatever additional operative procedures may be necessary to remove obstructions and straighten out the ureters



cation method of E. Willys Andrews is gaining an increasing number of followers. An apparently hopeless maze of modifications of these techniques is found in the literature, and is only matched by the immense number of techniques for aseptic intestinal resection. The answer to this all must be that the results of the operations now in general use are not satisfactory. It is safe to state that the percentage of recurrence is higher than we realize. Our recurrences do not come back to us and we develop an undue complacency in our results. That there is something wrong is very evident. There is a growing dissatisfaction with the old standardized methods. Is the answer to be found in new methods of repair or in the use of some new suture material, or what?

#### THE PROBLEM OF OBLIQUE INGUINAL HERNIA

I believe the solution has been reached for the oblique type of inguinal hernia by a small number of men whose work has not yet achieved general recognition. It is based as all surgery should be, upon sound anatomical reasoning, and I have attempted to sum up the important anatomical points as these men see them.

The inguinal canal consists briefly of two fascial layers which form the anterior and posterior walls, with the spermatic cord running obliquely through them, entering through the internal ring and leaving through the external ring. This canal normally should be long, small in diameter, and most important of all, oblique, with the internal ring fitting snugly about the cord. The situation is analogous to the manner in which the ureters enter the bladder. Any increase of intra-abdominal pressure closes the inguinal canal in a valve-like manner, similar to the way in which increase in the intravesical pressure closes the lower end of the ureters.

The obliquity of the canal and the closure of the internal ring is also aided by a very important structure, the internal oblique muscle. The lower fibers of this muscle have their origin from the outer half of Poupart's ligament, curve upward, inward, and downward to form the conjoined tendon. Contraction of these fibers tends to approximate the muscle edge and Poupart's ligament, and to reinforce the internal ring against internal pressure. This action has been likened to a camera shutter or an iris diaphragm, and is sphincter-like in action. In rodents the funicular process remains open, permitting the testicle to be drawn up into the abdominal cavity. Hernia formation is prevented in these animals by the contraction of this muscle.

Next, and the structure of greatest importance, is the internal ring, which is an opening in the transversalis, or in the later terminology, the transversus fascia. It is also called the endo-abdominal fascia and is the inguinal portion of the general enveloping fascia of the body, the integrity of which is universally recognized in every other location to be of the utmost importance in the prevention of hernia. Who would be so foolish as to attempt to close an umbilical or a postoperative ventral hernia by suturing the muscles and leaving this fascial layer unclosed?

This endo-abdominal or transversalis fascia is applied closely to the posterior surface of the internal oblique and transversalis muscles, forms the floor of the inguinal canal and passes below Poupart's ligament to form the anterior wall of the femoral canal and merges into the fascia lata of the thigh. It is thin where it forms the floor of the inguinal canal, but is much heavier beneath the muscles and often forms a heavy white fascial layer as distinct and strong as the shelving edge of Poupart's ligament. It can easily be identified by placing two or three fingers in the internal ring, the upper heavy edge of which is formed by the transversalis fascia. In some cases, unfortunately, this layer is more attenuated and difficult to find and this is likely to be true in the cases which need it most, namely, the very large and the direct hernias. It seems to me, then, that the rate of recurrence is in direct relation to the strength of this fascial layer.

What, then, is the picture in an indirect hernia? The canal is shortened, it loses its obliquity, and the internal ring is enlarged, the lower margin approaching to a greater or less degree the spine of the pubis. The sac or the unclosed funicular process must, of course, be present, but is of lesser importance. Eccles<sup>5</sup> reports potential hernial sacs in 23 per cent of middle-aged cadavers examined. The incidence of hernia is very much smaller. Berger<sup>6</sup> states that about one in sixteen born will acquire hernia. Why, then, do not a greater percentage of potential hernias develop? Without any question, as long as the internal ring remains intact hernia cannot develop. If the internal ring is congenitally deficient or becomes dilated, permitting a knuckle of bowel to enter it, it becomes further dilated by hydrostatic pressure, much in the same manner as the amniotic sac dilates the cervix in labor.

#### THE REPAIR OF AN OBLIQUE INGUINAL HERNIA

The repair, then, of an oblique inguinal hernia consists in the restoration of these various anatomical structures to their normal relationship. If the reasoning thus far is correct the solution to the problem is very obvious. First, the high ligation and removal of the sac; and I might state here that there is a report on record of two thousand cases of herniotomy in which removal of the sac was all that was done and the percentage of recurrences was lower than the average of the standard methods. In children, where the internal ring is not greatly stretched out, this might easily be all that is necessary. Second, closure of the internal ring which means approximation of the endo-abdominal or transversalis fascia snugly about the cord, suturing it to Poupart's ligament, which does away with the anatomical fault at its source.

Connell sums up the aim of repair thus: "Our aim in treatment should, therefore, be to imitate nature; remove the sac, and make the canal long, oblique, and small, with an active muscular check at the entrance."

This muscular check, then, is the third point and consists of leaving the internal oblique muscle



alone, so that it can contract actively and aid in maintaining the obliquity of the canal and the closure of the internal ring. This muscle should lie superficial to the cord and not be sutured beneath it, to avoid crippling its action. The function of the internal oblique muscle is destroyed by suture.

It is difficult to understand why such fundamental anatomical principles should have been so long ignored. Bassini evidently understood the principle, but wrongly applied the treatment and the great mass of surgeons have followed in his footsteps. The only great departure from Bassini's technique has been in the imbrication method of E. Willys Andrews. This method of closure attempts to do with the external oblique fascia what nature intended should be done by the deeper and better placed endo-abdominal fascia. If the crucial structure, the internal ring, is left open, it permits an entering wedge to separate the structures of the inguinal canal by hydrostatic pressure and can undo the most perfect reconstruction of the inguinal canal. A weak repair at the right place, the internal ring, will do the work much better than a far stronger repair superficial to this structure. This is proved by the highly satisfactory results that follow the placing of one or two sutures in the internal ring from the abdominal side when laparotomy is done for some other reason and a formal repair of the hernia is deemed inadvisable. I repaired last year a hernia that had recurred following a Bassini repair, in which the muscle had remained beautifully sutured to Poupart's ligament but in which the internal ring remained open, permitting the easy entrance of three fingers. The sac pushed out of this dilated ring and down and out beneath the muscle, causing the recurrence.

The importance of the internal ring is being recognized by an increasing number of surgical writers, among which are Pitzman,<sup>1</sup> Edmund Andrews,<sup>2</sup> Connell,<sup>3</sup> Damon Pfeiffer,<sup>4</sup> and others, but it is still far from attracting the attention the importance of the subject merits.

#### COMMENT

I have been following this technique since 1925; at first, reinforcing this endo-abdominal layer with the imbricated external oblique after the method of Andrews, but as my confidence has increased, I have trusted entirely to this one layer when strong, and the hernia not extremely large. Of late I have extended my confidence in this fascial layer, as has Edmund Andrews, to include repair of direct hernias, which are without doubt due to weakening and stretching of the transversalis fascia. More and more men are becoming convinced that direct recurrences which make up such a large percentage of recurrent hernias are due to suturing of the conjoined tendon which later pulls away from Poupart's ligament, leaving this region much weaker than before it was sutured. The transversalis fascia in this region can easily be drawn down from beneath the conjoined tendon and a strong fascial closure be made without tension. I have now quite a large series of cases, and while my follow-up records

are not complete, owing to the difficulty of tracing county hospital cases, I have known of no recurrence up to the present time that has recurred through the internal ring. I did have one patient in whom there was a small recurrent hernia that protruded out at the spine of the pubis and probably due to defective suturing at this point. In the repair of this recurrence I had the opportunity of feeling my repaired internal ring from the inside and was unable to indent even the tip of my finger into the internal ring. This greatly increased my confidence in this technique and I am optimistic enough to believe that it comes nearer to being the ideal hernia repair for the oblique type than anything thus far worked out.

#### TECHNIQUE

The technique in brief is as follows: Incision of the skin, splitting of the external oblique fascial roof of the canal, isolation of the sac, are performed as usual. The sac is opened and its contents returned to the abdomen and careful exploration is made for sliding hernias, direct sacs, etc. The internal oblique muscle is grasped with Allis forceps and retracted upward, permitting the white fascial layer of the transversalis, which is applied to the inner surface of the internal oblique muscle, to be recognized and grasped with Allis forceps. This layer is then sutured to the shelving edge of Poupart's ligament. Andrews places his sutures before the sac is removed so that a finger can be kept in the abdomen to facilitate the recognition of the correct layer and to prevent the needle from going too deep. Another way is to place Allis forceps on the transversalis fascia with a finger within the abdomen, then attend to the sac and suture the fascia later. I have never had any trouble in getting forceps on the right layer without a finger in the abdomen. The sac should be twisted into a cord, ligated as high as possible and allowed to retract without transplanting.

Care should be taken not to include muscle in the grasp of the sutures. The outer suture should be taken with the cord at right angles to the body and as snugly against it as possible. No suture is taken external to the cord. This leaves a resilient cushion for the cord and greatly lessens post-operative pain and pressure on the cord. Drop the cord back in, suture the cut edges of the external oblique fascia together and close the subcutaneous fascia and skin in the usual manner.

In large hernias or where the structures are thinned out, a valuable reinforcement can be made by doing the Andrews imbrication of the cord in addition to the suture of the endo-abdominal layer.

As a final note, I believe one should never transplant the cord out through all the structures to the subcutaneous fascia. This leaves a direct canal out to the surface and permits recurrence alongside the cord and is not infrequently seen following the repair of a direct hernia. It is best to put at least one fascial layer over the cord at the internal ring.

#### CONCLUSIONS

1. Indirect inguinal hernia is the result of:  
(a) Preformed congenital sac, due to failure of



obliteration of the processus vaginalis. (b) Enlargement of the internal ring.

2. The internal ring is an opening through the endo-abdominal (transversalis) fascia.

3. Repair of oblique hernia consists of: high removal of the sac; closure of the internal ring by repair of the structure through which it is an opening, namely, the endo-abdominal fascia.

1401 South Hope Street.

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#### DISCUSSION

W. S. KISKADDEN, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Dickson has presented in a clear concise manner the salient points regarding hernioplasty, and his review of the anatomy is exact and pertinent. Doubtless all of us have adopted a technique which gives more or less good results, but often our technique may become routine and overlook a true anatomical reconstruction.

I am in accord that high ligation of the sac is important and all that may be necessary. However, one should always repair the internal ring. Often sutures placed after the method advanced by Connell are adequate. Routinely, however, the use of the transversalis fascia to reconstruct a new floor is logical and correct anatomically. Doctor Dickson has again pointed out the importance of this fascia and clearly outlined why the use of the internal oblique is to be discouraged.

I do not believe too much stress can be laid upon the fact that the canal is normally oblique and should regain this obliquity in the reconstruction. Reference to Connell's article will show excellent sagittal diagrams of the fascial and muscle layers and should create an indelible picture of the importance of the transversalis fascia and the internal ring.

Statistics vary from one per cent to ten per cent on recurrences following various procedures. Any technique, therefore, that offers the results that Doctor Dickson claims is worthy of careful study and consideration.

✽

O. O. WITHERBEE, M. D. (1401 South Hope Street, Los Angeles).—I wish to compliment Doctor Dickson on the able presentation of his subject and also for the perseverance he has shown in building up his faith in the technique he has outlined.

It is difficult in discussing this subject to adhere closely to the points enumerated in the paper and to refrain from introducing and elaborating on such methods as the speaker may have devised in procedures of his own.

Doctor Dickson has laid special stress, and rightly, on the resistance offered by the transversalis fascia in the prevention of hernia. Its importance may be measured directly in proportion to the weakness or deficiency of the remaining layers of the abdominal wall. Nature, usually so lavish in other respects, has been extremely penurious in her supply of worthwhile tissue in the inguinal region. It is quite evident that man was not constructed for the upright position. All four-footed animals exhibit this same deficiency, their exemption from hernia depending on the fact that the horizontal position throws no direct and continuous strain on the inguinal structures.

Referring again to the transversalis, let me say that its competence depends immediately upon the support of the overlying structures, and if these are deficient the fascia must of necessity give way in time. In the vast majority of patients we observe the whole floor

of the inguinal canal greatly relaxed and often, in long-standing cases, so thinned out as to be apparently absent. This condition could never obtain if the muscular wall was complete and offering the same resistance it does in other localities. The arching fibers of the internal oblique, as they sweep from Poupart's ligament over to the edge of the rectus, should completely cover the internal ring, thus reinforcing the transversalis at this point.

It is surprising, however, to note the large number of cases in which this does not occur; in fact, this deficiency in the internal oblique is considered by many to be the most potent predisposing cause of inguinal hernia. If this be true, then it is quite evident that the reconstruction of this abdominal layer is most essential for successful repair.

As Doctor Dickson has so aptly emphasized the importance of fascial layers for unyielding support, so I wish to emphasize the necessity of fascial reconstruction when once the transversalis has been weakened or thinned out sufficiently to destroy its natural support. If the transversalis has not lost its integrity and can be rebuilt, then well and good, but we must remember that in absence of proper support from the internal oblique, it gave way once and may again. It is still possible, however, to build a fascial layer of unusual strength by bringing the edge of the rectus sheath across to the shelving portion of Poupart's ligament and then to reinforce this line of union by imbricating the edges of the external oblique. Transplanting the cord is by no means necessary when these structures are once secured in proper position.

Regarding the percentage of returns, I wish to say unhesitatingly that should the patient develop another inguinal hernia it will not be on the same side.

✽

DOCTOR DICKSON (Closing).—I wish to thank Doctors Witherbee and Kiskadden for their frank discussions. I agree with Doctor Witherbee in the importance of strong muscle structures in the inguinal region. But that arching internal oblique muscle must be left free to contract. It must lie superficial to the internal ring as a reinforcing buttress. It must not be sutured about and beneath the cord where it cannot function, as in the Bassini operation; thus leaving a direct, short communication between the abdominal cavity and the superficial layers of the abdominal wall which is easily dilated again. A strong, snug, fascial closure at the internal ring about the cord must be made and should be made of the anatomical structure which normally belongs there.

## BLADDER TUMORS—CLINICAL MANIFESTATIONS\*

### REPORT OF CASES

By LOUIS CLIVE JACOBS, M. D.

AND

ABELSON EPSTEEN, M. D.

San Francisco

DISCUSSION by Charles P. Mathé, M. D., San Francisco; J. C. Negley, M. D., Los Angeles; Wilbur B. Parker, M. D., Los Angeles.

MODERN writings on tumors of the bladder date from the introduction of the cystoscope into urology. Since then our knowledge has been materially increased by the addition of roentgenology. As a result of the world-wide studies which received an impetus through these mechanical aids, various classifications of bladder growths have been developed. Some of these are

\* From the department of urology, Mount Zion Hospital, San Francisco.

\* Read before the urology section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



based upon histological findings; others upon cystoscopic appearances; others upon a combination of these two methods; and still others upon the site of the tumors in the bladder.

All tumors of the bladder are potentially malignant. From a classical standpoint, Young's biological grouping is ideal. Clinically, however, it is practically impossible to determine the degree of malignancy of any particular tumor. Ninety per cent of all bladder tumors are composed chiefly of epithelial cells; and of this group the papilloma predominates. They are often located directly upon the trigon; but usually posteriorly and to one side of the ureteral orifices. While the majority of bladder tumors are primary, nevertheless many are secondary to growths in adjoining organs. In the male the growth may be secondary to a prostatic or rectal malignancy, and in the female, secondary to uterine carcinoma. Again kidney or ureteral growths may metastasize to the bladder.

Our interest in this subject has recently been stimulated by the addition of surgical diathermy to the therapeutics of bladder tumors. We have, therefore, reviewed this thesis as evidenced by the records for the past six years of the department of urology, Mount Zion Hospital, San Francisco. We have concerned ourselves not only with the therapeutic aspects, but also with the diagnostic and roentgenographic features thereof.

#### DIAGNOSIS

In the diagnosis of tumors of the bladder, the symptomatology, laboratory findings, cystoscopic appearances, and other data, have been found quite in conformity with those given in the various textbooks and in the numerous papers written upon this subject. However, we find that the knowledge derived from cystography has not received the attention and importance that it really deserves. We have routinely made cystograms and, at times, stereoscopic ones, and feel that our knowledge of each particular case has been materially increased thereby. A cystogram shows the outline of the bladder that has been made opaque by distending it with a medium impermeable to the roentgen ray. We use a freshly prepared and sterilized 13 per cent sodium bromid solution which is injected into the bladder by means of a soft rubber catheter.

Cystography can never supersede cystoscopic inspection, but it can and should supplement it. Cystoscopic inspection is a direct visualization of the pathology, cystography is an indirect view; and direct ocularization is the highest type of clinical diagnosis. The cystogram should corroborate the cystoscope. In addition, it may give us data not obtainable by cystoscopy. In many patients, cystoscopy is impossible or unsatisfactory because of instrumental intolerance, profuse hemorrhage, size of tumor mass, vesical contraction or deformity, or extravescical pressure. In these instances, cystography may reveal to us the desired information as to the site and extent of the tumor mass, and may aid in the selection of the proper therapeutic procedure.

An irregular filling defect of the normally smooth vesical outline characterizes a neoplastic bladder. This defect is located at the site of the pathology and varies in direct proportion to the thickness and size of the growth. Just how large the neoplasm must be before it produces a cystographic deformity cannot be mathematically determined, but when it is of sufficient size to produce this finding, the treatment indicated is either surgical diathermy or resection.

The x-ray has likewise proved valuable in revealing conditions of ureteral reflux with secondary ascending kidney infections. Due to metastases, a change in the structure of the long bones may be detected. This will often be the first indication of a generalized carcinomatosis and is diagnostic of carcinoma of the prostate. The rationale of a routine complete general examination, including roentgenologic studies in every suspected malignancy of the bladder, with especial attention to both vaginal and rectal palpation, is evident. By so doing we often encounter a generalized carcinomatosis and refrain from futile bladder surgery.

#### MATERIAL FOR THIS STUDY

In our studies of tumors of the bladder for the past six years at Mount Zion Hospital we have reviewed fifty case histories. In these, cystograms were made of forty patients. Nineteen were positive, that is, the cystogram did not show a normal bladder. The majority revealed either a filling defect or an irregularity of the bladder wall. As regards the age, our youngest patient was twenty-nine and our oldest seventy-one years, the majority ranging from fifty-one to sixty-five years. As for sex, there were approximately three males to every female. The cystoscopic appearance varied from a small pedunculated papilloma to massive cauliflower growth, involving the major portion of the bladder wall; some of the growths almost entirely filled the bladder cavity. Only a very small percentage showed a single circumscribed growth upon the posterior wall. Eighteen of the fifty patients showed, cystoscopically, diffuse infiltration of the bladder wall. The ureteral orifices were involved in but two patients; in four others they were obscured by the massive size of the growths. In six of the patients, pain over the bladder was the predominating symptom. Hematuria was present in all but four. The majority of patients applied for relief because of either profuse hemorrhage or some disturbance in micturition. In one of the female patients the chief complaint was inability to void in the standing position. This was later explained by a large cauliflower growth which floated over the internal orifice when in the erect posture, producing an obstruction.

#### TREATMENT

The treatment used in these cases was fulguration; diathermy, both transurethral and suprapubic; radium; deep x-ray therapy; and resection. In the small tumor cases, where the patients tolerated repeated cystoscopy, the mass was destroyed



transurethral by means of the fulgurating electrode. The majority of these patients required from five to eight fulgurations, given at one to two weeks' intervals. No tumor was destroyed in less than three treatments. In five patients, following fulguration, radium seeds were implanted through the cystoscope. In eight patients, in whom it was more practical to open the bladder, we utilized surgical diathermy. In twenty-six patients transurethral fulguration alone was used. Deep x-ray therapy alone was used in but two patients; both old men that were practically moribund. However, at times, in other patients, roentgen-ray therapy was added to the treatment. Resection was attempted in five patients, with a mortality of 100 per cent, which is accountable by the fact that these were almost inoperative patients and all had extension of the carcinomatous process into the surrounding tissues. From our meager experience in the treatment of these patients we have come to the conclusion that resection should only be attempted in the advanced patients when one feels certain that there is but little involvement of the perivesical tissues. The small papillomata, regardless of how extensive the infiltration of the bladder wall appears, cystoscopically or roentgenologically, where possible, should be treated by continuous transurethral fulguration. One should not become discouraged if no marked improvement is noted following two or three applications, as sometimes it will require at least twelve different fulgurations to cause a disappearance of the tumor. Where a repetition of these treatments is impossible it is best to open the bladder suprapubically, remove the greater portion of the growth or growths by means of the hot cautery and then use surgical diathermy in the bladder wall, cooking it to the extreme degree. Often it is advantageous to immediately do a suprapubic operation, using surgical diathermy, and not procrastinate with transurethral fulguration. Radium and deep x-ray therapy have been used by us in some of our patients, but we have never been able to see any brilliant results therefrom.

In our series of fifty patients, we have definite proof of ten deaths within one year following treatment; two died in the second year following treatment, and four in the fourth year. Our statistics show that at the end of four years we have five patients alive and well and free from symptomatology. Of these five, four were treated by diathermy alone and one by diathermy with radium.

We also have a record of three patients treated in 1916 by transurethral fulguration; one of whom lived eight years, had a recurrence with metastases and died. The other two are still alive and well, though one had a recurrence three years ago and recurrences again one year ago. The third had no recurrences. Both of these patients were recystoscoped within the last sixty days and show no evidence of recurrence. The clinical aspect of the neoplasms in the three patients was, cystoscopically, identical and were unquestionably malignant.

*Surgical Diathermy.*—In our more recent patients we have utilized surgical diathermy in preference to other forms of treatment. In a perusal of the literature upon this subject, one finds strong advocates of radium, deep x-ray therapy, cautery knife, and resection in treatment of bladder neoplasms. Kolisher, Corbus, and O'Connor have been the pioneers in advocating the more extensive use of surgical diathermy in the treatment of these growths. At the present day the majority of urologists are treading in their footsteps. The consensus of opinion is that it is the treatment of choice.

Surgical diathermy is the newer method of utilization of electric coagulation of the tissues. It is accomplished by the direct application of the electrode of a high frequency, high amperage, and low voltage current to the tumor mass. By this means, an intense penetrating heat is generated within the tissues, resulting in their complete disintegration.

There are a number of reasons for the universal popularity of this method of therapeutics. Among the more important ones are: the possibility of destroying masses that cannot be removed by any other method; the minimizing of shock, incapacitation, length of time in the hospital; the lessening of the danger of metastases by the sealing of the blood vessels and lymphatics; and the checking of hemorrhage.

#### REPORT OF CASES

The following two cases are indicative of the work we are doing with surgical diathermy in tumors of the bladder:

CASE 1.—Mrs. A. H., age sixty-five, in whom an electrocardiographic examination shows "myocardial damage," came under observation on April 5, 1928. On cystoscopy, a "berry-like mass" was found posterior to the right ureteral orifice. The growth was twice fulgurated transurethral. However, it was quite too cumbersome for this method of therapy. We admitted her into the hospital, and under general anesthesia did a suprapubic cystotomy. With one of the disk electrodes, the diathermic current of about 1600 milliamperes was applied for four to five minutes. There was no after-pain whatever, and she made an uneventful and painless convalescence. A piece of tissue sent to the laboratory for examination showed "malignancy of the bladder." Her entire hospitalization was a period of sixteen days. Cystoscopic examination at the present time shows the mass entirely destroyed.

\* \* \*

CASE 2.—Mrs. R. G., age forty-seven, who had had a hysterectomy in 1911, came under observation in October 1924, complaining of hematuria and burning on urination. Cystoscopic examination revealed a tumor of the bladder which was destroyed transurethral by means of the D'Arsonval fulgurating current. She disappeared until July 1928, at which time she presented herself with a history of hematuria of nine months' duration, and of frequency and pain of three months' duration. On examination a number of cauliflower masses were seen on the trigon and on the posterior aspect of the bladder, extending somewhat on the lateral walls. She was sent to the hospital, and the treatment was similar to that of Case 1. A piece of tissue was sent to the laboratory. The pathological report was: "Papillary epithelioma of the



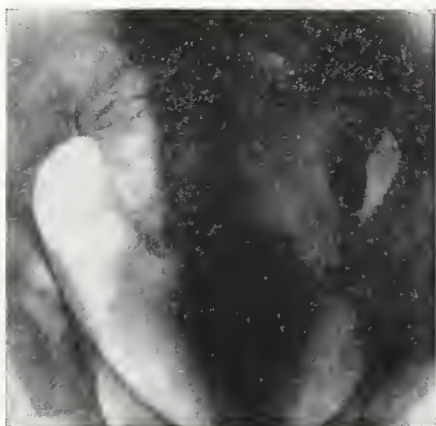


Fig. 1 (Mr. J. G., age sixty).—Bladder markedly contracted and irregular in outline. Diagnosis: Carcinoma of the bladder. Treatment: Radium and deep x-ray therapy.

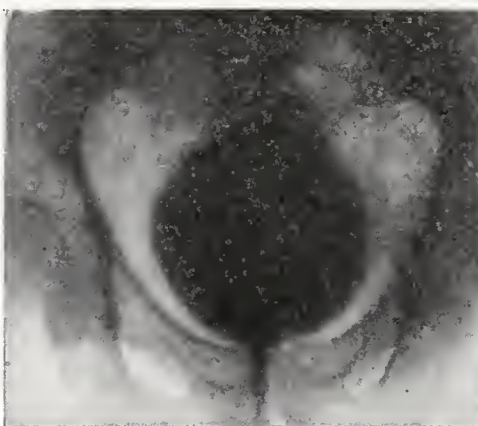


Fig. 2 (Mr. A. F., age fifty).—Slight irregularity about superior margin of bladder. Diagnosis: Papillary carcinoma of the bladder.

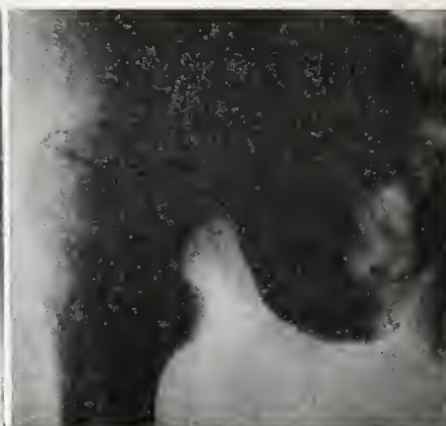


Fig. 3 (Mr. J. B., age fifty-six).—Metastases in femur and pelvis.

bladder." She remained in the hospital for a period of twenty-six days. On returning three days later, she had a contracted bladder. This was dilated. One week later cystoscopic examination revealed one small, reddish, tender area near the internal urethral orifice, which was transurethraly fulgurated. Since then her bladder has been cystoscopically negative and she has been free from symptoms.

Photo plates of a few of the more interesting and instructive conditions of this type which were under our observation are submitted.

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#### DISCUSSION

CHARLES P. MATHÉ, M. D. (450 Sutter Street, San Francisco).—The high mortality of bladder cancer reported by Doctor Jacobs and Doctor Epstein is similar to that experienced by all urologists treating neoplasms of the bladder. This fact should be a plea for early diagnosis and prompt institution of treatment, and all patients giving the history of hematuria should be cystoscoped. Those presenting microscopic blood should also be examined. I have encountered a number of patients presenting small papillomata in whom the only sign indicating pathologic changes was the finding of microscopic blood cells in the urine in the course of a routine examination. This is particularly important because of the fact that the most common group of bladder tumors, the papillomata, begin as benign growths and later take on malignant properties.

Determination of malignant degeneration in a vesical neoplasm is often difficult because the piece that

is removed for diagnosis may not necessarily be from that portion of growth presenting malignancy. Also, the cystoscopic picture is sometimes misleading and cystography is of aid only when the tumor has attained relatively large proportions or has become adherent to the surrounding structures. In making a cystogram, the employment of air as a means of distending the bladder is very dangerous because of the possibility of an air embolus. The pressure employed in order to inflate the bladder can be sufficient to cause the air to enter the venous circulation, particularly when there is ulceration or necrosis of the tumor, and may lead to grave symptoms.

In treating bladder tumors one should not be guided by any given method of procedure. The size and position of the tumor, the ease of surgical approach, etc., are deciding factors. As Doctors Jacobs and Epstein have emphasized, fulguration is of great value. It is simple, efficacious, and can be repeatedly employed with little shock to the patient. If the growth is not too extensive, clean surgical resection is the best procedure. The tumor is dissected by employing the bistoury, or better, the cautery knife. I have a patient living nine years after surgical resection of a fairly large circumscribed necrotic carcinoma which was situated on the anterior bladder wall. Another patient is living, two years after removal by electrocautery of a necrotic carcinoma from the base of the bladder behind the trigone. Neither has presented any sign of a recurrence.

In operating on malignant tumors of the bladder one must be careful not to spread any of the cancer cells. This is accomplished by continually sponging the incision with sponges soaked with alcohol and by

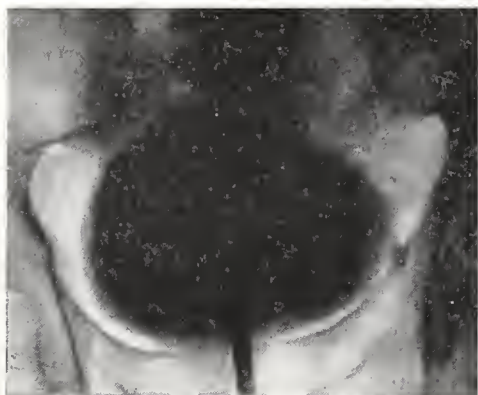


Fig. 4 (Mrs. T. B., age forty-four).—Large smooth tumor in right pelvis, causing bladder pressure.

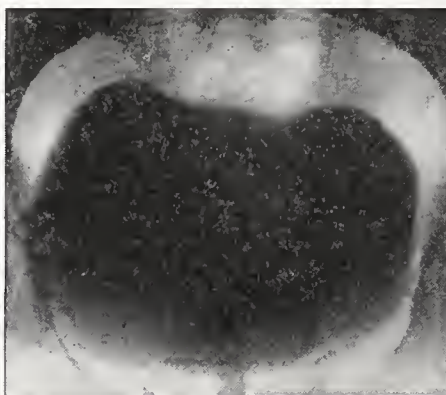


Fig. 5 (Mrs. F. S., age forty-five).—Irregularity of upper portion of the bladder. Diagnosis: Carcinoma of the bladder. Treatment: Transvesical diathermy and radium. No recurrence in three years. Capacity of bladder increased from two to eight ounces.

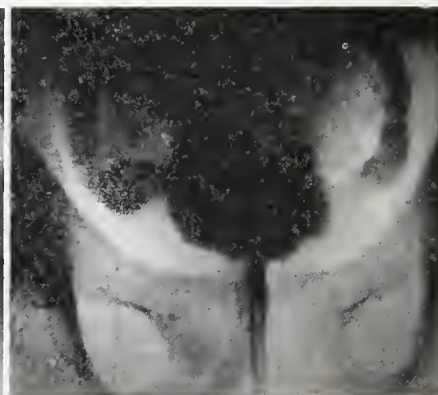


Fig. 6 (Mr. N., age forty-eight).—Contracted bladder with irregular outline. Ureteral reflux. Diagnosis: Tumor of bladder.



employing the cautery knife. It is well to examine the bladder periodically every two or three months in order to detect recurrence and to institute immediate treatment.

In patients in whom resection is difficult or impossible the use of diathermy, advocated by the authors, is ideal. In inoperable bladder carcinoma, diversion of the urinary stream by transplantation of the ureters into the skin of the lower abdomen, or into the large intestine, relieves inexpressible misery, alleviates symptoms, lessens invalidism, and prolongs life. It guarantees drainage of urine and enhances the employment of a destructive dose of radium or diathermy through the open bladder, deep x-ray therapy, or cystectomy.



J. C. NEGLEY, M. D. (Brack Shops Building, Los Angeles).—Several statements by Doctors Jacobs and Epstein require special emphasis and attention:

First: It is clinically impossible to determine the degree of malignancy, but observers of wide and varied experience usually need only the confirmation of the laboratory to establish their cystoscopic diagnosis.

Second: Cystography has not received the attention it really deserves. Best results are obtained by a flat plate with bladder empty, then a plate with the bladder filled to comfortable capacity with any suitable opaque media. If further information is desired, the bladder may be filled with air and a third plate taken; air cystograms, however, are not without danger.

With all the plates at hand, we sometimes have findings as to size and site of tumor; also evidence of bladder fixation from extension to or from contiguous tissues.

Third: As our skill and improved equipment increases, tumors should be treated more and more by transurethral fulguration. Large size, many repeated fulgurations, degrees of malignancy, and extensive infiltrations do not deter us from using the above method now, as in the past. Personally, my preference is for this method, with deep x-ray before or after, or both.

Surgical diathermy through an open bladder must be resorted to when complications exist, such as extreme hemorrhage, with or without bladder full of clots, extreme pain, dysuria, frequency, bladder-neck obstruction, pyelitis, and pyonephrosis. Afterward the bladder should not be allowed to close until all sloughs have come away and until infection has been reduced totally, or to a minimum, and until the patient is in good physical condition. Accomplishment of these results requires three weeks at least, and preferably longer. Extension of malignant tumors from contiguous tissues into the bladder cannot correctly be classed as bladder tumors and, for obvious reasons, only those tumors having their primary origin or location in the bladder wall should be classed as bladder tumors.

A study of the current literature concerning bladder tumors should lead to the following conclusions:

1. No standard treatment has yet been established which is superior to all others.

2. Painstaking diagnosis, using all available methods with information so gained applied to each individual case, rather than following some personal preference, should be used in all cases.

3. Urologists should approach this problem with an open mind, without prejudice or bias, and a full consideration and tolerance toward the experiences of colleagues. Only then can a more nearly idealistic solution of this difficult and interesting situation be achieved.



WILBUR B. PARKER, M.D. (527 West Seventh Street, Los Angeles).—Clinical manifestations of bladder tumors are best brought out through careful his-

tories, repeated urinalyses, and cystoscopic findings. The majority of urologists are handicapped by a previously attempted cystoscopic or biopsy diagnosis which may have resulted in a psychologic depression in an otherwise faithful patient. There are no patients in urology who are more submissive to treatment than the bladder-tumor patients, who can be treated as ambulatory patients.

I have never favored biopsies nor do I believe the supposition that it is within the scope of any man to accurately determine the degree of malignancy of any bladder neoplasm before complete examination of the specimen. It is a pleasure to report in this discussion a similar series as mentioned by the authors treated transurethraly, the patients being treated as ambulatory patients. The method used was persistent repeated thermocoagulations preceded and followed by deep x-ray therapy.

Only two of these patients succumbed within one year from carcinomatosis. The remainder of the patients are alive and well, though 15 per cent have had recurrences during the past five years which have been controlled in the same manner.

Of a similar series by open operations, five only have survived. The latter were of the type that an open operation was the last resort. They were extended every means of treatment recognized of value and as individually indicated.

The object of treatment is the complete and permanent destruction of tumor tissue. That is the ideal for which we strive. I have in my series of cases found that desiccation diathermy or, if you please, thermocoagulation through the cystoscope, combined with x-ray radiation, approaches this ideal nearer than any other method. I have found that an open operation is not necessary now where some years back it would have been my choice. This, of course, brings us back again to the matter of experience. And as it increases, so does my respect for thermocoagulation through the cystoscope plus x-ray. Likewise my pleasure in seeing many of my patients still reporting for observation five years after such procedure. But I bow humbly to the exception to the rule, which is the tumor, the therapeutic indications of which are open bladder surgery. Such usually mean much grief to both the doctor and his patient.

Several of the most extensively involved transurethral patients were members of the medical profession. One in particular presented a bladder with thirteen papillary carcinomata. Others of the laity presented low-grade malignant tumors the size of a man's fist. They are willing to be interviewed as to their present state of well-being after a period of more than four and one-half years.

Cystography, in reference to bladder tumors, seems to be a disappointment, except for confirmation to a certain degree of cystoscopic findings. I am unable, in contact with a number of southern California roentgenologists, to arrive at any other opinion. Surely, the roentgenologists are in a better position to interpret such findings more accurately than the average urologists.

The osseous structures of the pelvis and the unsatisfactory stereoscopic visualization of soft tissues in this area render further explanation unnecessary.

I wish to emphasize and compliment the authors of this paper on their treatment of bladder tumors. Individually extended experience and regular observation cystoscopies of these unfortunate patients will eventually standardize a modality code that will insure in general a more satisfactory percentage of cures.

Truly there is no greater mutable question in the field of urology than the successful control of vesical neoplasms. Location, degree of malignancy, and elapsed time to a great degree control the results in the hands of the most skillful urologist. Any deductions of value that one may make on the observations of the authors will rest alone upon past experience.



## NONGONORRHEAL ENDOCERVICITIS AND VAGINITIS\*

By DONALD A. DALLAS, M. D.  
San Francisco

DISCUSSION by T. Floyd Bell, M. D., Oakland; Albert V. Pettit, M. D., San Francisco.

**N**ONGONORRHEAL endocervicitis and vaginitis are diseases of great importance to any physician who assumes the responsibility of treating women patients. This applies not only to the gynecologist, but to the general practitioner and specialist also. The ophthalmologist and orthopedist must keep the cervix uteri in mind as a focus of infection in inflammatory diseases of the eye and joints. Endocervicitis and vaginitis are very common diseases and cause a great deal of illness and suffering among all ages and classes of women. Endocervicitis is more often encountered than vaginitis, and is a more important disease on account of its serious sequelae.

During the years 1925-1928 there were 3391 new patients examined in the Stanford University women's clinic. Of these, 1225, or 33.1 per cent, had an endocervicitis of sufficient severity to cause the attending gynecologists to record that diagnosis in the histories. In other words, one-third of all the women who came to our clinic for examination had a moderately severe endocervicitis. This percentage is more striking when it is remembered that we do all of the female urology for the medical school.

### PATHOLOGY

Chronic infections of the cervix act as foci of infection in exactly the same manner as do chronically inflamed tonsils, abscessed teeth, or chronic appendicitis. Benedict, von Lockum, and Nickel of the Mayo Clinic report inflammatory diseases of the eye as having been cured by treatment of the infected cervix and treatment with autogenous vaccines prepared from cervical cultures. Mary Moench reported a case of choroiditis which was cured by autogenous vaccine and amputation of the cervix. It is worthy of note that this patient had an intact hymen. All of the before-mentioned cases harbored hemolytic streptococci in the cervix.

Breuer made cultures from the cervixes of many women and found streptococci, staphylococci, *Bacillus coli*, gonococci, and *Bacillus welchi*. He believes that nephritis, endocarditis, neuritis, acute and chronic mono- and polyarthritis, and peptic ulcers are sometimes caused by foci of infection in the cervix.

Sterility in the female is undoubtedly often caused by chronic endocervicitis. The thick, tenacious mucus which fills the cervical canal probably mechanically prevents the spermatozoa from reaching the uterus. Often, too, the reaction of the cervical discharge is sufficiently acid to kill

the sperm. Many sterile patients become fertile after eradication of the chronic infection in the cervix.

Puerperal infections are frequently caused by bacteria which have been present in the cervix for months before delivery. The organism usually present is an anaërobic streptococcus, but, fortunately, of low virulence.

Carcinoma of the cervix is undoubtedly often caused by the long-continued irritation of its epithelial tissues by a chronic inflammatory process deep in the cervix. There have been reports in the literature of large series of cases of chronic endocervicitis treated by cautery and operation in which no cases of cancer are known to have developed. These reports point the way to the prevention of many cases of cancer of the cervix and it behooves us to treat thoroughly and conscientiously every badly infected cervix.

Endocervicitis is an inflammatory disease of the tissues surrounding the cervical canal. Little was known of the disease until recent years, and the discharge that is practically always present was thought to come from the endometrium. Chronic endometritis was a very common diagnosis, and the cervix was dilated and the uterine cavity curetted as a routine treatment. The material obtained at curettage was sometimes examined microscopically and the diagnosis confirmed, as the various stages in the cystic building up and breaking down of the endometrium were not known and the microscopic picture was interpreted as inflammation. The occasional cure obtained by dilatation and curettage was, in all probability, due to the better drainage of the cervix which resulted from the dilatation. In our clinic the diagnosis of chronic endometritis is almost unknown.

Most cases of endocervicitis of nongonorrheal etiology result from the invasion of the cervical tissues by pathogenic bacteria at the time of delivery, abortion, or instrumentation. Lacerations of the cervix during these procedures are responsible for most of the infections. The cervical glands are deep-branching types lined by a single layer of high columnar cells the nuclei of which are at the bases. Under the influence of inflammation set up by the invading bacteria they pour out increased quantities of mucus mixed with pus. Many of the glands become sealed off and form cysts which are frequently visible and palpable, and are known as Nabothian follicles. In many cases where the laceration has been fairly extensive, there is an actual eversion of the lining of the cervix. In other cases the normal squamous epithelium surrounding the external os is displaced by a single layer of high columnar cells which normally covers the cervical canal. This is known as an erosion. In neither case is there an actual ulcer present although the gross appearance suggests this.

### TYPES OF ENDOCERVICITIS

The types of endocervicitis are hard to classify, but the cases can be divided clinically into five groups. Within these groups the severity of the

\* Read before the Obstetrics and Gynecology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



infection, the amount of damage done to the tissue, and the symptoms will vary greatly. In a general way, however, the classification is satisfactory.

*Class 1.*—Endocervicitis in the virgin. This class contains the smallest number of cases and is not at all common. There is often an associated retroversion of the uterus causing pelvic congestion, with symptoms of backache and pelvic pain. The discharge is generally clear mucus and not irritating. The best treatment is cauterization of the cervical canal with the small nasal tip. This is best done under anesthesia.

*Class 2.*—Endocervicitis in the nullipara. This class is a fairly large one and the cervicitis is, in a large percentage of cases, initiated by the gonococcus. This organism, however, often dies out, leaving secondary invaders present which continue the process. The cervical discharge is often profuse and somewhat irritating to the vulva and perineum, clear to yellow in color. There is generally an erosion of the cervix present. Occasionally there is involvement of the tubes and parametrium.

The treatment in this class depends somewhat upon the extent of the disease. In the mild cases, local applications of silver nitrate, 20 per cent, to the cervical canal and an astringent douche is all that is necessary. The more severe cases require cauterization with the electrocautery and, occasionally, operation. These procedures will be described later.

*Class 3.*—Endocervicitis in the postpartum patient. This class is, of course, a large one as practically every cervix that has been dilated has sustained at least small lacerations. At this time the endocervicitis is usually a mild one. There is often a retroversion of the uterus present with slight subinvolution. Local applications of silver nitrate 20 per cent, replacement of the uterus and, if necessary, the fitting of a pessary to be worn for several weeks or months, is all the treatment necessary. Occasionally, cauterization of the cervix must be resorted to, the method depending upon the severity of the infection and the extent of the laceration present.

*Class 4.*—Endocervicitis in the woman several months or years after delivery or abortion. This class presents a fairly typical picture. The patient usually complains of a moderate vaginal discharge with associated symptoms of other pelvic disease, *i. e.*, backache, pain in lower abdomen, heaviness in the pelvis, etc. The cervix on palpation is somewhat larger than normal, it is rough and hard and contains a few Nabothian follicles. There is an erosion or eversion often present. The cervical canal is filled with a thick, stringy, tenacious, yellowish discharge.

Local applications of medicinal substances do not tend to cure the disease in this type. In our clinic cauterization is resorted to immediately if the inflammatory reaction present is not too acute. Operation is necessary in a few of these patients to effect a complete cure.

*Class 5.*—Endocervicitis many years after delivery or abortion, or after repeated deliveries or abortions.

The picture of the old chronic, deep-seated endocervicitis is a familiar one to every physician. The cervix is hypertrophied, studded throughout with Nabothian follicles, lacerated in one or more places with eversion of the canal mucous membrane or an extensive erosion. There is a moderate to profuse thick discharge filling the cervical canal and vagina. This is the so-called precancerous cervix. There is generally some relaxation of both vaginal walls with more or less cystocele and rectocele, often slight prolapse of the uterus.

The less damaged cervixes can be cured by deep cauterization of the canal and vaginal portions with the large cautery tip. The more severe cases must be operated upon. In the milder cases, if there is cystocele and rectocele present, operation is the procedure of choice.

#### TREATMENT

The treatment of chronic endocervicitis has never been and is not at present entirely satisfactory. The vaginal discharge in many patients persists in spite of our best efforts. The medicines used in the past are almost innumerable and the forms and methods of application are many. It was not until the introduction of cauterization of the cervix by Hunner in 1906 that the office treatment of the disease became a rational one. This method has been enthusiastically used by many men, including Dickinson, Halden, Mathews, and many others.

Five general modes of treatment are in wide, general use at the present time.

*First Method.*—The first and most widely used method is that of local applications of medicinal substances to the cervix. In the Stanford University women's clinic, the drugs available for local application to the cervix are limited practically to 10 and 20 per cent silver nitrate and 10 and 20 per cent mercurochrome with a glycerin and ichthyol mixture (equal parts) which is instilled into the vault of the vagina by means of a Triumph syringe and held in contact with the cervix by means of a lamb's wool tampon. These drugs are used in the clinic in mild cases of endocervicitis, most frequently in postpartum cases where there is a moderate discharge, small laceration of the cervix often with a small erosion about the external os. The cervical canal is freed of mucus and painted with 10 or 20 per cent silver nitrate. The lacerated edges of the cervix and the erosion are likewise painted and the patient is given a prescription for a mildly astringent douche to be taken daily. This often suffices to bring about a cure.

*Second Method.*—Actual cauterization of the cervix by means of the electrocautery is used in most of the more severe cases. Two types of cautery tips are used—the small wire nasal type and the larger heavy duty type. Some experience and judgment is required to determine the method



and the extent of the cauterization. In mild cases it is only necessary to cauterize the cervical canal with the nasal tip and the area of erosion in a radial fashion about the external os. The depth required in these cases rarely exceeds two millimeters. In the more severe cases and in those not cured by the nasal tip it is necessary to cauterize the cervical canal with the larger cautery tip. This can be done in the office by placing the cold tip well up in the cervical canal, against one or the other wall, and turning the current on slowly. When a groove of sufficient depth is burned the current is turned off and the tip removed and allowed to cool. It is then placed against the opposite wall and another groove burned. In this way four deep grooves (two to five millimeters in depth) can be burned in the cervical mucous membrane. The area of erosion or eversion is then cauterized radially with the small tip. A large part of the infected cervical tissue is destroyed, but sufficient is left for regeneration of the canal lining and I have never seen stenosis result.

It is occasionally necessary to hospitalize the patient, dilate the cervix with Hegar dilators and stripe the cervical mucous membrane deeply with the large tip. In this way from four to six deep stripes can be burned from the internal to the external os. Care is taken to burn out the lacerated corners. The results are usually excellent.

There are several contraindications to cauterization, the most important being acute inflammation (nervous patient, etc.).

After cauterization of the cervix the patient is warned that the discharge will be more profuse for several days. Saline douches are prescribed after three or four days, to be taken daily. The patients return to the clinic after one week and the cervix is inspected. Healing requires from two to four weeks.

*Third Method.*—The destruction of the diseased cervical tissue by means of high frequency current is advocated by many. However, deep sloughing and profuse hemorrhage are said to occur occasionally. Frank M. Ende describes a new instrument and means of calibrating each machine by a very simple method. I have had no experience with it.

*Fourth Method.*—Frank Helvestine advocates infiltration of the cervix with two per cent aqueous solution of mercurochrome. The cervix is pulled down with a tenaculum, painted with two per cent mercurochrome, and the canal freed of discharge. A two per cent solution of mercurochrome is injected into the tissue of the cervix at four points of the compass. The needle used is five-eighths inch, twenty-five gauge, which is inserted parallel to the canal. Just a few drops are injected at each point, the injection being continued as the needle is withdrawn. One-half to three-fourths of one cubic centimeter is injected at each treatment. The points between are injected at the next treatment. He claims that it is simple, effective and inexpensive, seven to nine treatments being required to effect a cure.

*Fifth Method.*—Radium in small doses was advocated by A. H. Curtis several years ago. This method is losing favor on account of our inability to predict the effect of even small doses on the ovaries. It is not always effective.

*Operative Procedure.*—In spite of all the before-mentioned methods of treating the infected cervix, a few must be operated upon to cure the disease. We have used, almost exclusively, the Sturmdorf technique because it removes infected cervical tissues and leaves a large part of the healthy muscle tissue intact. The disadvantages of high amputation (frequent and severe postoperative hemorrhage, sterility and subsequent abortion or premature labor) are largely avoided.

Mention should be made of the infected cervix which is left behind after supravaginal hysterectomy is done. We have found that surgical removal of this bothersome, dangerous, and useless organ is the most satisfactory treatment. This operation is done through the vagina and is a simple, rapid procedure in most cases.

#### TYPES OF VAGINITIS

There are several different types of vaginitis. The two types, aside from that caused by the gonococcus and senile vaginitis, that are frequently seen will be discussed here.

*Type 1.*—The first is that in which *Trichomonas vaginalis* is thought to be the etiological agent. Castellani states that, while there is some doubt as to whether the organism is pathogenic, it is significant that these organisms are much more frequently found in vaginitis cases. *Trichomonas vaginalis* is a flagellate, roughly pear-shaped and somewhat larger than a white blood cell. There are four flagella arising from the rounded end. There is an undulating membrane extending from one pole to the other along one side. The organism can be grown on artificial media through many generations. Dextrose broth with five per cent human blood serum is reported by Carl Davis as being an excellent medium. He found that liniment of soft soap, diluted to 10 per cent strength, killed the organisms instantly, that 50 per cent glycerin caused immediate loss of motion, and that a compound solution of cresol (1-400) killed them immediately.

The vaginitis caused by, or at least associated with the presence of this organism in the vagina is a very intense one. The infected patient complains of a severe burning sensation in the vagina and vulva and the presence of a profuse irritating vaginal discharge. Examination shows the vulva and perineum to be reddened and edematous. The vagina is markedly inflamed, the walls often red and swollen. If rubbed lightly with gauze many small bleeding points can be seen. There is, as a rule, an associated cervicitis, but this is not a striking characteristic of the disease. The discharge is yellowish in color and filled with bubbles, giving it a frothy appearance, which is characteristic. Smears made from the discharge show large numbers of bacteria of various forms.



With practice, the *Trichomonas* can be recognized in the stained smear. They are more easily demonstrated by placing a drop of the discharge on a slide, adding a drop of warm normal salt solution, and examining under the high dry power. The moving flagella can be seen readily.

The results of treatment in some cases are spectacular. In our clinic we have adopted a modification of that proposed by Greenhill. The vagina is thoroughly scrubbed with soft soap, using a gauze sponge held between two fingers. This procedure must be carried out with gentleness, as the vagina is exquisitely tender. The vulva and perineum are then scrubbed in the same manner. A bivalve speculum is placed in the vagina and the walls dried with cotton sponges. They are then painted with one per cent solution of methylene blue and a tampon saturated in the dye is inserted. The patient is given a prescription for one-half per cent lactic acid douche to be used twice daily. Treatments are carried out every second or third day until relief is obtained.

*Type 2.*—The second type of vaginitis frequently seen is that caused by fungi. There are two distinct clinical forms of the disease. One is the membranous type and is characterized by a profuse, clear, very irritating discharge, and the presence of patches of white membrane on the vaginal walls and flakes of this membrane in the discharge. This is the so-called vaginal thrush. The second or purulent type is characterized by a profuse purulent yellowish discharge which resembles very much that of acute gonorrhea and is undoubtedly often mistaken for it.

The symptoms are the same in both forms and consist of marked burning and itching of the vulva, vagina, and perineum. On examination the vulva and perineum are inflamed and tender, and there are often areas of abrasion where the patient has scratched herself. The vaginal walls are markedly inflamed, red, edematous. The cervix is often involved in the process and is congested and swollen. This disease is frequently seen in pregnant women.

Castellani states that smears made from the discharge always show an extensive bacterial flora and the presence of round or oval bodies, usually described as yeast cells. The fungi can be grown on artificial media such as glucose-agar or maltose-agar plates and subcultured in pure form. They belong to the genus *Monilia persoon* 1797 of the class *Fungi imperfecti*.

The treatment of the condition is quite satisfactory except in patients who are pregnant. We have found that drying the vagina carefully and painting it thoroughly with Berwick's solution, is quite effective. Castellani recommends hot sodium bicarbonate douches followed by a weak tincture of iodine solution (tincture of iodine, one ounce to one pint of water). Ethel Heard reported three cases which responded promptly to one per cent gentian violet applications. She wisely advises against the use of tampons. A modification of the treatment is sometimes necessary on account of the vaginismus that is induced

by the severe inflammation. In these cases, instillation of mercurochrome, two per cent (Berwick's solution is too painful), into the vagina through a small male catheter will in a few days reduce the severity of the inflammation sufficiently to allow a more satisfactory method of treatment.

#### SUMMARY

1. The frequency, etiology, and sequelae of endocervicitis are discussed.
2. A clinical classification of nonspecific endocervicitis is given and appropriate methods of treatment indicated.
3. *Trichomonas vaginitis* with an effective method of treatment is discussed.
4. Mycotic vaginitis is described and its treatment indicated.

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#### DISCUSSION

T. FLOYD BELL, M.D. (400 Twenty-ninth Street, Oakland).—The type of vaginitis due to *Trichomonas vaginalis* needs emphasis, since it is becoming more important as a gynecologic condition; probably because it is recognized more often than formerly. While the type of discharge and symptoms are fairly typical, it must be differentiated from diseases of the cervix with leukorrhea. Many patients have had gynecologic operations with no relief, later to have the *Trichomonas* found and treatment instituted with complete relief. The diagnosis is easy if the possibility is kept in mind, as Doctor Dallas has pointed out. The examination of any patient with leukorrhea is not complete unless both fresh and stained smears are made. Many methods of treatment have been advocated. Since using 20 per cent mercurochrome I have had very much better results than formerly. A bivalve speculum is inserted and the vaginal secretions removed with cotton. The entire vagina is then painted liberally with 20 per cent mercurochrome, and 10 to 15 cubic centimeters of 20 per cent mercurochrome is left in the vault of the vagina and held there by tampons. These are removed the next day and a daily douche is taken. The patient is instructed to cleanse externally twice daily with tincture of green soap. Treatments should be given three times a week at first, gradually lengthening the interval till all symptoms are absent and smears are negative. Menstruation seems to favor the growth of the organisms, so treatment should be carried out during this period. Usually four to five weeks is sufficient time to clear up the infection.

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ALBERT V. PETTIT, M.D. (2000 Van Ness Avenue, San Francisco).—This paper by Doctor Dallas serves to bring to our attention a thing of great importance, and one which is rarely stressed—the causes and treatment of nonspecific vaginal discharges. The infective agents of nongonorrheal leukorrhea are fairly innocuous as regards general health, but the discharge itself gives rise to marked discomfort and offends the sense of cleanliness.

Nonspecific infections of the cervix have often, in the intact cervix, been gonorrheal at their inception; the streptococci have invaded the tissue prepared by the gonococcus. In the damaged cervix, and in lacerations due to ill-advised operative efforts or to the effects of pregnancy, the infection may be primarily streptococcal. Except in the case of gonorrhea, I have never seen distant symptoms of infection from the cervix as a focus.

The treatment of choice in chronic infections of the cervix is cauterization if future normal pregnancy and labor is hoped for. Circular amputation, using



the technique described by Sturmdorf, is excellent, but only to be applied to those patients where pregnancy is not expected.

Inflammation of such a large mucous membrane surface as the vagina gives very marked symptoms. The symptoms of dragging down, sensation of weight, or the feeling that the pelvic organs would fall out, often considered characteristic of pelvic relaxation, or of tumor, are in reality characteristic of distention of vein walls, whatever the cause. Inflammatory reaction of the vaginal walls give these symptoms in a marked degree, and to these symptoms are added those contributed by chemical irritants, burning, and itching.

In the vaginitis group, the two most important classes are the Trichomonas and the fungus classes. Trichomonas may be demonstrated in many patients where the characteristic signs and symptoms described by Doctor Dallas are absent. The great numbers of these protozoa found in the characteristic discharge, however, seem to point to them as a causative agent. The soap and various dyes seem to be the most effective agents, but the daily treatment continued throughout the menstrual period is most important.

The treatment of yeast infection of the vagina has been very unsatisfactory in my experience. The thick yellowish white blanket of mycelia covers the cervix and vagina more or less completely, causing considerable pain and burning over the mucous membrane of the vestibule and labia. Berwick's dye, painted liberally over the vaginal walls after removing as much of the mucous membrane as possible, gives temporary relief, and I have found it necessary to repeat this treatment as often as twice weekly through an entire gestation period. The condition has a marked tendency to spontaneously disappear a few weeks after parturition, only to reappear at subsequent pregnancy. I have not seen yeast invasion of the vagina giving symptoms in a nonpregnant patient.

## PYLORECTOMY AND GASTROENTEROSTOMY —IN ONE OPERATION\*

By ASA W. COLLINS, M. D.  
San Francisco

DISCUSSION by Rodney A. Yoell, M. D., San Francisco;  
Carl L. Hoag, M. D., San Francisco; James F. Percy,  
M. D., Los Angeles.

A PARTIAL gastrectomy is indicated where there is obstruction of the pylorus due to definite pathologic lesions such as multiple ulcers in and about the pylorus, a large ulcer, a complicated one, a cancer, or a suspicion of cancer, and also where a previous gastroenterostomy has failed to relieve the symptoms. Within the last few years, many writers on this subject have apparently shown an ignorance of the fundamental physiology involved, since many of them are of the erroneous opinion that acid is secreted only in the pyloric portion of the stomach. However, a partial resection of the stomach does lessen the amount of acid secreted and probably prevents, in many cases, jejunal ulcers.

### COMMENTS ON THE REPORTS IN THE LITERATURE

Inasmuch as Wilson and McCarthy have proved that 71 per cent of the cancers of the stomach which have been removed show evidence of pre-

vious ulceration, the writer believes that a surgeon should hesitate in doing a simple gastrojejunectomy and allowing an old ulcer of the stomach to remain.

As far as partial gastrectomy is concerned, ulcers of the stomach and duodenum in this paper will be considered under a single head, owing to their proximity, similarity, and interrelation. Although many times it is possible to determine whether the patient is suffering from an ulcer of the stomach or duodenum before the operation, the treatment is the same.

It is understood that all cases of gastroduodenal ulcers are not subjected to partial gastrectomy, as patients in early stages are often cured by medical treatment, with the hope that some change may be effected in the secretory activities. In simple duodenal ulceration of short duration a partial gastrectomy appears unnecessarily severe, inasmuch as a safe gastroenterostomy so frequently relieves the symptoms. This is not illogical, for the acid content of the stomach is not always high and may be sufficiently reduced by partial neutralization. However, when a test-meal reveals a high acid content, it is probably wise, even in these patients to do a partial gastrectomy and escape further ulceration; although Balfour, in an analysis of twenty-nine cases of recurrent ulcer following partial gastrectomy, is convinced that elimination of gastric acidity does not necessarily protect the patient against further ulceration.

N. C. Lake of London reports complete relief of symptoms in 95 per cent of partial gastrectomy patients compared to 50 per cent relief in simple gastroenterostomy patients although the mortality was higher in the partial gastrectomy patients.

L. R. Broster of London, in a follow-up of 121 partial gastrectomies, gives the following results: 30 per cent very good; 47 per cent good; 10 per cent very fair; 7.8 per cent fair; 5 per cent poor. In this series of patients, 80 per cent may be regarded as having been cured, 10 per cent as improved, and 12 per cent as having received no relief.

Tremont-Smith and McIver, in an analysis of 678 cases, give a mortality of 18.7 per cent which includes patients who underwent operations such as the Billroth I and II, Polya, Balfour and Moynihan I and II.

P. Bastianelli (Valdarna) believes his enthusiasm for resection is justified by the results in seventy-five patients in which series he had two deaths. Fifty-one of these patients had Billroth II operations; 80 per cent of the series were traced without a single recurrence.

### HISTORY OF THE PYLORECTOMY OPERATION

The first pylorectomy was performed by Pean in 1879. Reports were made two years after by Billroth, and later by Wolfler, Kroenlein, Mikulicz. Czerny, Bull, Treves, Moynihan, Weir, Senn, and Meyer. The mortality during that period was obviously very high, about 50 per cent. William J. Mayo in 1898 reported three cases. In 1903 Kocher reported on seventy-five patients with a mortality of 29.3 per cent.

\* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



In 1906 Moynihan characterized pylorectomy as "an operation of generous promise," and in the same year William Rodman advocated pylorectomy in gastric ulcer. He collected thirty-one cases from the records of Mayo, Robson, Park, Finney, and Rodman, and noted but one death.

Up until 1912 twenty-five patients upon whom pylorectomy operations had been done in the Mayo Clinic were living and well.

In 1926 H. Finsterer believed his mortality of 17.4 per cent could be greatly lowered if a better mechanical technique could be attained, as a number of patients showed a bursting of the duodenal stump and peritonitis.

H. J. Patterson has recently stated that the mortality in partial gastrectomy for ulcer is but little higher than gastroenterostomy, and the permanent results much better.

Last year Truesdale reported on forty patients, with a mortality of five per cent, thirty of these being operated by the Billroth II method, six by gastroduodenostomy, and four by the Polya method.

Recent conclusions at the Mayo Clinic are that cancer of the pyloric end of the stomach could be recognized sufficiently early to make radical operation possible in at least one-half of the patients; that the mortality is about 10 per cent dependent largely upon the grade of cases accepted for operation, the mortality being less than five per cent if the patient's condition be good; that there is a prospect of a five-year cure in about 25 per cent of the cases; that a three-year cure is possible in about 38 per cent of those patients who recover from the operation; and that comparatively few patients who recover from the excision fail to get more than one year of relief.

Kronlein and Mikulicz modified the Billroth method (II) in order to anastomose a long loop of jejunum directly to the cut end of the remaining portion of the stomach; Kroenlein using the whole lumen of the cut end of the stomach for anastomosis with the long loop of jejunum; and Mikulicz closing the upper two-thirds of the stomach opening, and then performing a button anastomosis between the jejunal loop and the lower portion of the stomach opening.

Polya, after excising the involved portion of the stomach, sutured the margins of the lumen of the remaining end to a corresponding length of the antemesenteric aspect of a loop of jejunum, about six to twelve inches from the duodenojejunal junction.

Balfour, of the Mayo Clinic, modified the Polya technique by employing the antecolic route rather than the retrocolic route of gastrojejunostomy, using a loop of jejunum taken about fourteen inches from the plica duodenojejunalis, in spite of the objection, more or less substantiated, of the long-loop, antecolic route. According to Lewisohn, Balfour reports the following statistics of the results of different operative techniques at the Mayo Clinic: 318 patients operated upon by the Billroth method (II) with 13.2 per cent mortality; 104 patients by the Polya method with 14.4

per cent mortality; and 38 patients by the Balfour method with 5.2 per cent mortality.

Following partial gastrectomy, union of the cut proximal end of the duodenum with the remaining portion of the stomach is more physiologic, of course, than the anastomosis of the stomach remnant with any part of the jejunum. And in spite of the fact that Kocher, especially, has satisfactorily accomplished this after extensive mobilization of the duodenum by incision of the peritoneum over the right kidney. The extent of distance to be spanned is often so great after the removal of any considerable part of the stomach that the resultant tension upon the sutures of anastomosis is generally too great to be safe.

Surgeons who do a great deal of gastrointestinal surgery usually do not confine themselves to any particular operation when removing the pylorus, but resort to some form of either of the Billroth operations.

#### AUTHOR'S MODIFICATION OF DOYEN OPERATION

Doyen gives a good description of his operation in his book. He places one of his powerful clamps on the duodenum below the lesion, and another above on the stomach. Then removing them he encircles the crushed portion with a ligature, and after removing the section inverts the stump with a purse-string suture. The crushing of the stomach with powerful clamps, followed by ligation, is not to be commended. Instead of using clamps, I place a purse-string suture of No. 2 chromic catgut around the stomach above the lesion, and another to encircle the duodenum below the part to be removed, in like manner always taking care that the needle gets a good purchase in the submucous coat. Before excision, another purse-string suture of plain catgut is placed around the stomach, above the chromic suture, and again the same is made to pass around the duodenum below the chromic suture. The chromic sutures are now tied, wrapped around and tied again for greater safety. It is very important that the chromic ligature be drawn very tight. The portion between the two ligatures is now removed and the stumps cauterized with carbolic acid and alcohol. The stumps are now inverted and held inside by the drawing and tying of the plain catgut purse-string suture. Posterior gastroenterostomy is performed in the usual manner, all ligatures and sutures being of absorbable material. The illustrations presented can better describe the operation.

The technique is very simple and excludes any possibility of hemorrhage, leakage, or infection, and is a great time-saving procedure, which is of the very greatest importance in an operation of this magnitude. In the past fifteen years, I have performed this operation ninety-four times with the following results: by sex, 54 men, 40 women; by anatomical part, 65 duodenum, 29 stomach, as near as I could give it; by mortality, five deaths, 5.25 per cent mortality; by symptom results, 81, or 92.6 per cent of the patients have no symptoms and can take all kinds of food without restriction, but 7.4 per cent are not satisfactory due to some undetermined cause.



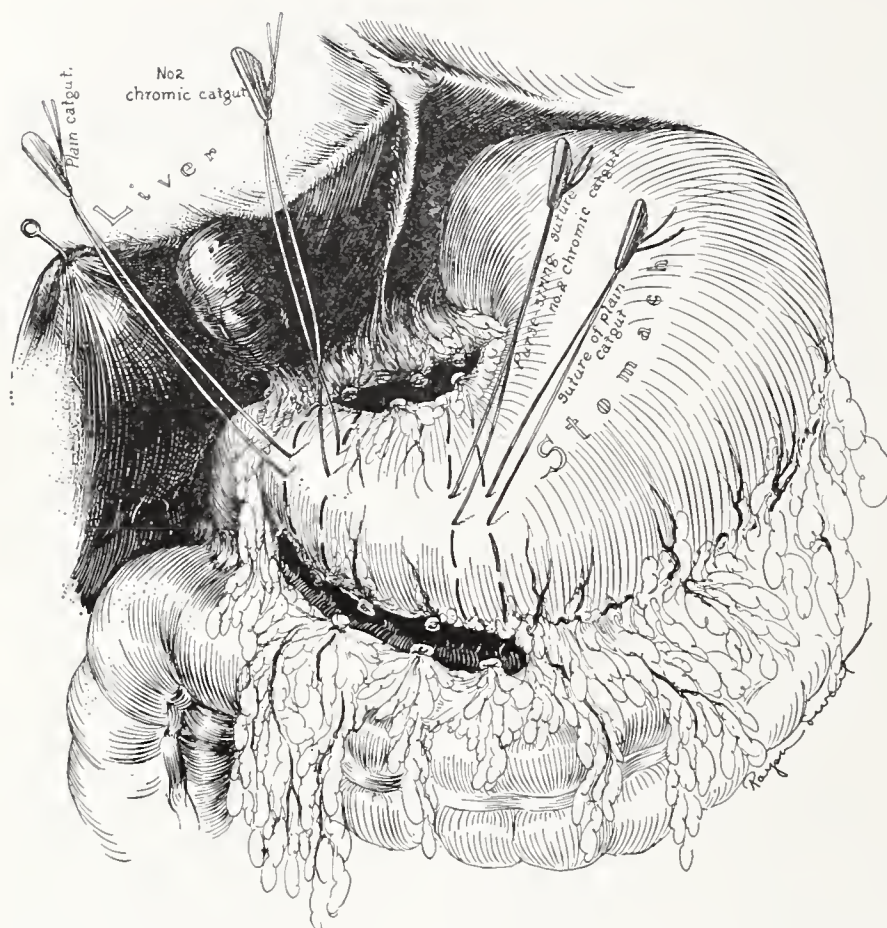


Fig. 1.—The distance between the chromic catgut tie and plain catgut purse-string suture requires a little judgment on the part of the surgeon. In this illustration the sutures seem almost too close together. The chromic ligature is tied very tightly, encircled again and tied a second time.

It is very difficult to keep a careful follow-up history of cases of this kind. For many of the first patients I can give only early results, as I have lost track of many of them, which I believe is true in practically all statistics. One could talk for hours on the comparative merits of the various methods devised for removal of the pyloric end of the stomach, but for rapidity, simplicity, and safety, the writer offers this method, which he considers a logical procedure.

*Preoperative Treatment.*—Symptoms due to a pathological lesion of the stomach or duodenum are usually of considerable duration before the surgeon is called to perform a radical operation, and the dyspeptic patient has undergone an intermittent period of suffering, necessarily denying himself the pleasure of eating the foods most enjoyable to all of us, and finally confining himself to a rigid diet which he himself has found most comfortable, or more commonly, to the strict diet and medication of the internist. Because of this training, the ordinary patient is quite well prepared for operation when entering the hospital. Alkal-

ization twenty-four hours before operation is essential. Three drams of bicarbonate of soda are given in divided doses. An enema should be given the night before and another the morning of the operation; and one-sixth grain morphin sulphate and 1/150 grain of atropin should be given one-half hour before taken to the surgery.

*Postoperative Treatment.*—

This has been quite well standardized. Immediately after the patient is placed in bed, 1000 cubic centimeters of a five per cent glucose and salt solution are administered subcutaneously by a two-way tube, one in each inner side of the thigh. One-sixth grain of morphin sulphate is given every four hours for from two to three days; and liquids are administered by mouth every two hours, beginning with the alkaline waters. Should vomiting occur, the stomach is lavaged; and on the night of the third day two ounces of milk of magnesia are administered, to be followed in the morning by the same dose.

After leaving the hospital the patient is cautioned to adhere very strictly to a prescribed diet. Although the diet is not of the



Fig. 2.—It is amazing how small a stump remains after tightly tying the chromic ligature. This ligature eliminates any possibility of hemorrhage or leakage.





Fig. 3.—The duodenal stump has been inverted and the gastric stump is ready to be inverted and held in place with the plain catgut purse string. Do not remove too much mucous membrane from the stump.

Sippy type, it is, however, confined to soft food of a milk base and pureed vegetables.

It seems a pity that stomach patients must be punished beyond the diet. Although tobacco does not cause ulcer, it certainly has a tendency to increase gastric secretion and acidity. This has been positively proved and, sad as it may seem, tobacco cannot be permitted before operation, and must be restricted for some time after removal of the ulcer. Tobacco does not cause ulcer any more than alcohol, but certainly is a "bad actor" in gastric ulcer.

Grave danger can arise if alkalies are given to excess, definite symptomatic reactions corresponding with the changing chemistry of the blood even to the point of tetanic convulsions may be produced, unless the alkalies are reduced or stopped.

#### SUMMARY

1. Diet and the removal of occult foci of infection may cure peptic ulcers in early stages.

2. Gastroenterostomy has proved effective in mild cases of hyperacidity where medical care has failed.

3. Gross pathologic changes in or on either side of the pylorus must be removed by excision.

4. Cancer of the stomach is

more common than in any part of the body.

5. Ulcer of the pylorus usually precedes carcinoma.

6. Removal of the pylorus with part of the stomach and duodenum removes the seat of predilection to cancer.

7. Gastroenterostomy leaves two openings, one of which will cease to function.

8. Gastroenterostomy may produce a vicious circle and also make the patient more prone to jejunal ulcer.

9. Removal of ulcer and cancer-bearing area and gastroenterostomy at one operation is a rational and logical operation if the technique can be simplified to remove all danger of hemorrhage, leakage and prolonged complicated operative procedures.

10. The writer believes the technique here described is so simple, rapid and devoid of possible postoperative complications that the operation can be completed as a one-stage operation.  
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#### DISCUSSION

RODNEY A. YOELL, M.D. (490 Post Street, San Francisco).—One is struck, on reading the literature of gastric surgery, with the differing opinions of choice



Fig. 4.—The operation of resection is completed and a posterior gastroenterostomy is done in the usual manner. A site on the jejunum, about eight inches from the ligament of Treitz, is selected for the gastroenterostomy. The stomach is not fixed and there is no interference with its mobility, which is of the greatest importance in maintaining normal function.



in the matter of operations and the various modifications of technique advocated, all designed to eradicate ulcer or cancer of that viscus.

The Billroth I and II, the Czerny-Mickulicz, Finsterer, Paen, posterior gastroenterostomy, the Balfour, Halstead and Finney, and finally the procedure of Devine represent but definite attempts to overcome the disadvantages of earlier operations and to achieve a more successful goal, namely, lowering of the mortality and eradication of the pathologic tissues.

One thing is striking, however, and that is the high mortality attendant on radical resection of the stomach, irrespective of the technique used. Another factor also worthy of note is the persistent effort by surgeons to achieve resection as being the ideal objective to be obtained in the treatment of ulcer. Less radical operations apparently do not give either the percentage nor the assurance of cures that resection vouchsafes.

Certainly the operation of partial gastrectomy is most formidable and any procedure which will render the technique more simple, less traumatic, less time-consuming and more in line with normal anatomical architecture, is to be commended and welcomed.

The operation as advocated by Doctor Collins seems to me to present certain very definite advantages. First, it eliminates excessive clamping and crushing, with the attendant burying of devitalized tissue which must ultimately be absorbed. Second, it eliminates the utilization of extensive amounts of suture material, all of which constitutes a strain on the peritoneum's resistance, and by the same token cuts down the time and trauma coincident with long suture lines and cut edges. Third, the end result of his procedure is an anatomical stump of finished appearance and more like the normal stomach contour than by any other technique, and also exposes far less area which could become the focal point for adhesions. Fourth, the paucity of metal in the belly greatly facilitates the handling of tissues and organs and permits of better exposure and walling off of the operative field and greatly enhances the mobility of the stomach stump for the performance of the entero-anastomosis. Indeed it is far simpler to perform this step after the resection than as is often done before the cutting out is commenced.

When I first saw Doctor Collins perform the operation, I doubted the possibility of purse-stringing so large a mass as the stomach stump. But he accomplished it with most astonishing ease and speed, and I have seen him repeat the performance several times and have accomplished it myself without any difficulty whatsoever. Technically it is most easily performed.

In conclusion, I believe that the operation advocated marks a definite step in gastric surgery. It combines several advantages, dictated by theoretical technical considerations, and practically eliminates many factors which undoubtedly contribute to the high mortality of gastric resection and which hold back the more widespread employment of that most desirable operation.

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CARL L. HOAG, M. D. (384 Post Street, San Francisco).—The principle of the procedure which Doctor Collins suggests for gastric resection is well established. It is the present-day standard method of disposing of the appendix stump and is used frequently in closing the end of the bowel where lateral or end-to-side anastomosis is to be done. Tying a purse-string suture around any portion of the bowel serves to compress the peritoneum, submucosa, and mucosa into one mass and prevents retraction of either layer. It is the separation of these layers and the retraction of some of them with their accompanying blood vessels which permits hemorrhage, ulceration and leakage to occur. Crushing clamps serve the same purpose, but the purse-string suture has the distinct advantage of maintaining compression during the entire operation and for hours or days afterward. It requires, however, the optional use of a greater length of gut than a direct clamp and suture method. As a rule the stomach wall is quite thick and the cross-

section to be inverted is large, so that a considerable length of gut should be available just as it is necessary to use more of the cecum in inverting an indurated appendix stump than when the tissues are thin and pliable.

I congratulate Doctor Collins for bringing to us this new application and feel that it has a distinct advantage in the Billroth II operation if the resection does not involve too great a portion of the stomach.

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JAMES F. PERCY, M. D. (1030 South Alvarado Street, Los Angeles).—This short paper by Doctor Collins epitomizes the essential known facts relative to major surgical conditions in the pyloric area of the stomach. In addition, he has well described a most attractive technique for correcting them.

I am wondering, however, if he can always invert the walls of the stomach and duodenum as easily and as safely as he describes. If he can also do this without inverting too much of the stomach wall, leaving a bulky mass within its cavity, he has shown us, I repeat, what would appear to be not only a valuable but an ideal procedure as well.

In the after-treatment it is exceptional in my experience to need to give "one-sixth grain morphin sulphate every four hours for from two to three days" following an elective resection of the stomach unless I have failed to adequately protect the endothelial lining of the abdomen from pain-producing trauma. Too few of us, also, are aware of the dolor-relieving possibilities of one or two sterile hypodermics given impressively by the nurse or the physician. Patients are more comfortable and their normal physiology is reestablished much quicker when morphin can be dispensed with.

It is also a question whether the many rules commonly given patients relative to their postoperative diet following gastric surgery are necessary. Fluids in small quantities as soon as the patient requests them following recovery from the anesthetic rarely cause trouble.

The dietary regimen laid down by Doctor Collins for these patients while they are in the hospital is probably serviceable, but when mine leave the institution I only insist that they thoroughly masticate their food before swallowing it.

Last year one of my patients wrote me that he was enjoying a wineglass of Worcestershire sauce before each meal. This man had suffered from chronic starvation for many years incident to a large posterior, evidently subacute, pyloric ulcer. He was advised to discontinue this part of his diet.

## THE LURE OF MEDICAL HISTORY

### A TWELFTH-CENTURY TREATISE ON SURGERY\*

By S. L. MILLARD ROSENBERG, Ph. D.  
Los Angeles

THE library of Judge Alfred K. Nippert of Cincinnati contains a photostat copy of a very rare manuscript of a twelfth-century medical treatise on surgery which is of exceptional interest in the history of medicine. The manuscript

\* This account by Professor Rosenberg of a twelfth century medical treatise by Bruno of Longoburgo is based on some notes made by the editor of California and Western Medicine during a visit to one of his friends in Cincinnati, Judge Alfred K. Nippert, Dr. Otto H. F. Vollbehr, who is mentioned therein as the donor, recently sold a collection of fifteenth century books to the United States Library of Congress for the sum of one million and a half dollars. That collection contains the famous Benedictine Monastery St. Paul (Carinthia, Austria), copy of the Gutenberg Bible, which is a forty-two line Bible, printed by Johann Gensfleisch zu Gutenberg himself, the world renowned German inventor of the art of printing.



concerns the celebrated Bruno of Longoburgo and his *Chirurgia Magna*, a work on major surgery.

The following is from an article in the *Washington Post* of November 8, 1929: "Through Judge Alfred K. Nippert of Cincinnati, a rare fourteenth century manuscript of the *Chirurgia Magna*, the thirteenth century work of Bruno of Longoburgo, was presented to the Library of Congress on October 31. It is a compilation of the medical knowledge of the thirteenth century. The interest of Dr. Otto H. F. Vollbehr of Berlin is responsible for the gift. He is the owner of a great collection of medieval manuscripts, and agreed to present Bruno's work if another donor would share the cost, as Judge Nippert has done. The gift comes at a time when an inventory is being made by Dr. J. F. Jameson of all classical and medieval manuscripts in the Library. It was also facilitated by a grant from the General Education Board."

The facts about Bruno and his celebrated book on surgery that are given below are partly quoted and partly paraphrased from a description issued by the Library of Congress:

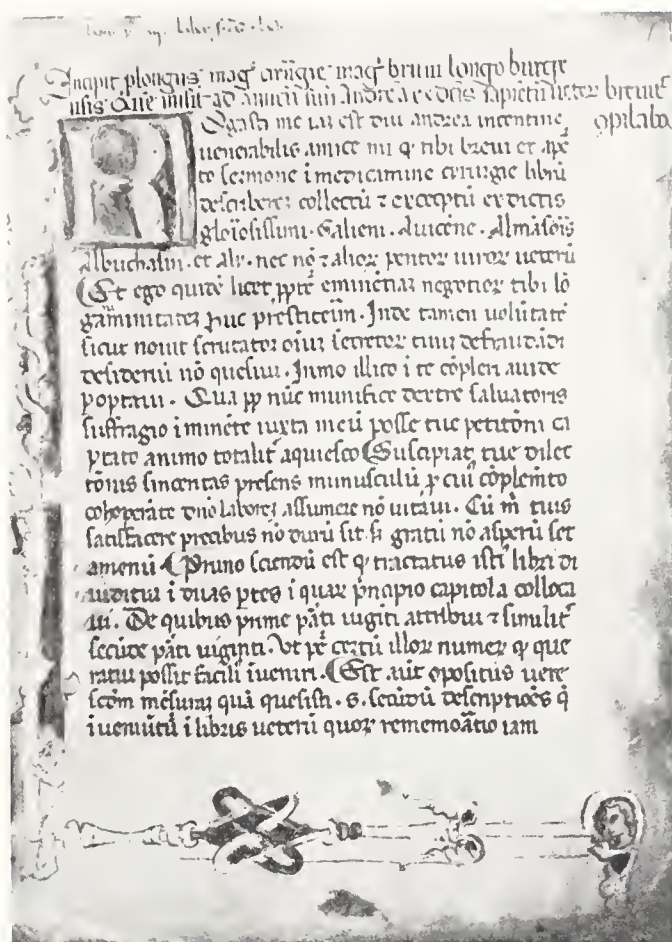
Bruno was the earliest of a remarkable school of North Italian surgeons of the thirteenth century. These men experimented with anesthetics, using opium and mandragora, and undoubtedly succeeded in producing insensibility to pain. Subsequent literature is full of references to these old surgeons who mercifully put their patients to sleep before they cut them.

All physicians of that time knew that an artery sent out redder blood than a vein and sent it by spurts, but Bruno and Lanfranchi are the first to mention a third form of bleeding, the capillary. Bruno and Guy de Chauliac are the first who speak of the two forms of the healing of wounds, by first or by second intention. Bruno insists that certain kinds of wounds must be left open till they heal, while others must be drawn together. To check bleeding he prefers styptic applications or searing with a hot iron, though he mentions the ligature.

With no knowledge whatever of the germ theory of disease, Bruno's insistence on cleanliness and care resembles modern asepsis. He especially warns against the use of water; all his treatment of cuts is dry. When some fluid seems necessary, as in pushing an intestine back into place, he advises the use of a clean cloth dipped in wine. Naturally the alcohol had a germicidal effect even though he did not know the theory.

There are three major divisions of medical treatment: diet, potions and surgery. Bruno in general opposes too free a use of surgery; it is a last resort after all other means have failed. Hence, like most of his contemporaries, Bruno advises against operating for cancer even when the growth could be entirely removed; he prefers blood-letting.

His ideas regarding stimulants are interesting. Surgeons must not be "vinolenti," habitual or excessive users of wine, though an occasional



Reproduction of the first page of the "Prologue" to the *Chirurgia* of Bruno de Longoburgo (A. D. 1252). For translation, see text.

glass may be allowed them. In operating they must combine the qualities of caution and boldness, and must be particularly careful when operating in dangerous places, as in the skull ("in cerebro").

Such are the principal features of the surgery practiced by Bruno and explained in his work, quoted later in this article. He wrote his treatise in the year 1252, at the request of his patron and friend Andrea (Andrew) of Vicenza, who is otherwise unknown. The title of his work in some manuscripts and references is *Chirurgia Magna*, in others *Chirurgia Major*. Its author's name, by the way, is sometimes spelled Bryno, which is the earlier form of it. Though written in 1252, the work was first published in 1519, at Venice; and, again at Venice, it formed part of a collection entitled *Collectio Chirurgica Veneta*. The manuscript now in the Library of Congress is without date, but internal evidence suggests that it must have been copied within a century after Bruno wrote the treatise; that is, it is a fourteenth century manuscript. Its value may be judged by an additional extract from the Library of Congress statement: "No printed edition is available in the Library of Congress or is as yet listed in the Union Catalogue of American Libraries (still incomplete). The remarkable collection in the Surgeon General's office of early books relating to the history of medicine contains works by Lanfranchi, Guy de Chauliac, and other approximate contemporaries of Bruno, but does not contain this treatise.



A manuscript at Erfurt, Germany, is reported to contain another work, the *Chirurgia Minor*, also by Bruno of Longoburgo."

A minute description of the manuscript, or codex, as such an old writing is generally called, is contained in the same statement, as follows:

"The codex is on vellum of a rather coarse quality, several leaves toward the middle and end of the book being imperfect, sometimes pieces out with sewed fragments. There are 168 leaves, 22.9 by 17 centimeters, in single columns, twenty-three lines to a page. The old folio numbering in Roman numerals is correct to 87; there are errors at 88 and again at 99, so that the last leaf is wrongly numbered CX. But in the corner of the last fly leaf is written 108, a modern notation of the correct foliation.

"The binding is modern, with paper fly leaves at front and back. On the inside of the front cover is written: Longoburgensis, Chirurgia magna, xivth ctry.

"The collation is in thirteen quires of eight, except that the third and ninth have nine, the eleventh six, the twelfth ten, and the thirteenth twelve.

"The work is divided into two books of twenty chapters each. The general title of fol. 1 and the colophon on fol. 108 are in red, as are also the titles for the list of chapter topics on fol. 2v, and for chapters 1, 2 and 3 (fol. 3v, 4v and 6v). From here onward the chapter titles are omitted, though space has been left for them and they were evidently expected to be filled in.

"The first letter of the prologue and the first letter of Book II (middle of fol. 66v) are in blue and red. Otherwise the text, though written with admirable clearness in a firm square hand, is unilluminated.

"Fol. 1, title in red, reads (see illustration): Incipit prolongus (*i. e.*, prologus) magnae chirurgiae magistri Bruni Longoburgensis quem misit ad amicum suum Andrean, ex dictis sapientium veterum breviter compilatae (but the codex reads *compilabo*). (Here begins the prologue of the *Great Surgery* of Master Bruno of Longoburgo which he sent to his friend Andrew—briefly compiled from the sayings of the wise men of old.)

"Fol. 108, colophone in red, reads: Expletus est liber supradictus a dicto Bruno Longoburgensi anno domini M.CC.LII indictione X. mense Januarii apud civitatem Padue in loco Sancti Pauli—Deo gratias Amen Amen Amen. (Finished is the aforementioned book of the aforementioned Bruno of Longoburgo in the year of our Lord 1252, indiction 10, month of January, in the city of Padua, in the place of Saint Paul—Thanks to God Amen Amen Amen.)" So far the description furnished by the Library of Congress.

The prologue begins (see illustration): "You asked me a long time since, my venerable friend Andrew of Vicenza, to write for you in brief, clear language a book on surgery, selected from the writings of the glorious Galen, Avicenna,

Almansov, Abul Kasim, Ali, and other experts of yore.

"On account of the importance of the subject I have given long devotion to this task, for, as the Searcher of all secrets knows, I have no wish to cheat you of your desire. I have, indeed, sought to do my duty by you thoroughly. Therefore, since the wish of my protector's munificent right hand has great weight with me, I acquiesce with all my heart in your request; and I have not hesitated to accept the aid and collaboration of my master, since it is pleasing to me to satisfy your desire.

"First, then, let it be understood that this book is divided into two parts, at the beginning of each of which I have placed headings, twenty to each part. To these I refer by their numbers so that the text can be readily found. It is, moreover, composed faithfully according to the plan that you have suggested, and it follows the descriptions which are to be found in the books of the ancients, whose remembrance already . . ."

This ends the first page of the Prologue. It will be noted that Bruno, in both the first and the last paragraphs, claims no originality, but names as his authorities one Greek and four Arab physicians of renown. Bruno's work, however, is much more than a compilation. He insists that surgeons must learn by seeing surgical operations and watching them long and diligently, though there are many things to be learned from books, even about the most difficult problems of surgery.

4508 Willowbrook Avenue.

## CLINICAL NOTES AND CASE REPORTS

### SURGICAL MOTION PICTURES IN COLOR

A METHOD ADAPTABLE TO THE OPERATING ROOM

By ERNEST W. PAGE  
San Francisco

IT has often been said by those who are acquainted with the use of motion pictures in medicine that the one factor which prevents the development of surgical motion pictures is the lack of natural coloring, since it is difficult to differentiate some anatomical structures in black and white.

Many attempts have been made to obtain colored records of operations, but the methods used have been so costly or beset with difficulties that they are almost prohibitive. The Kodacolor method has been almost adaptable, but requires so much illumination that special equipment is necessary, requiring arc lights which are associated with a definite hazard. Moreover, the results cannot be projected to any size over three feet in width without suffering greatly in brilliance.

With these facts in mind, a two-color modification of the Kodacolor system was devised which obviates these difficulties and enables the



use of the ordinary incandescent illumination found in the hospital, at the same time permitting the finished picture to be projected to full size.

The method consists in substituting a two-color filter, red and green (Wratten gelatin, Nos. 28 and 40), for the ordinary Kodacolor taking filter, and a similar combination (Wratten gelatin, Nos. 23B and 69) for the ordinary Kodacolor projection filter. Two equal segments of red and green are mounted between discs of celluloid or optical glass of such a size that they will drop into Kodacolor filter holders, or into any holder made to slip over a lens with a speed of at least  $f\ 2$ .

With this filter combination the pictures may be taken in one-third the usual amount of light for Kodacolor (the exposure factor is eight times instead of twenty-four) and projected with three times the brilliance. Two 500-watt spot lamps concentrated on the field of operation are sufficient.

The colored surgical pictures which the writer has obtained with this method have been highly satisfactory. The various shades of reds, yellows, and greens are more brilliant than those obtained with Kodacolor, although blues will not be reproduced and will show as greens. Blue, however, is a color infrequently met with in the operating room. The color rendition is identical with that of the technicolor process found on the professional screen.

Surgical motion pictures have been found valuable for instruction, for presentation before groups, and for personal records. It is hoped that the addition of color will further promote their use.

2180 Washington Street.

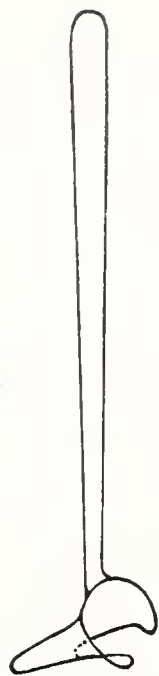
### A NEW INSTRUMENT FOR EXPOSING URETHRAL CARUNCLE

By H. H. PARSONS, M. D.  
San Bernardino

WHILE the removal of a urethral caruncle would seem to be a simple procedure, it sometimes is a very difficult one, especially when the sessile base extends into the urethra for some distance, such conformation accounting, no doubt, for their tendency to recur due to incomplete removal.

In order that the tumor and its base may be adequately exposed and the surrounding tissues protected from the spark of the high frequency electrode, the instrument here depicted was devised. For lack of a better name I have called it the "carunclescope."

The instrument is made of hard rubber, except the handle which is metallic, and is essentially the size and shape of a common ear speculum with a handle attached. The small end is solid and rounded, and is to be inserted into the urethra. The base is hollow and the side opposite the handle is occupied by a slot into which the caruncle and its base are manipulated for complete exposure. Should the growth be too large to fit into the slot it may be treated one-half at a time.



Carunclescope

In using the instrument the handle is held pointing upward, as the caruncle is usually situated on the posterior part of the urethra, thus allowing it to nest in the slot, which is three-eighths of an inch across at the base of the speculum.

After the tumor is exposed it may be treated according to the accepted technique, using either the monopolar or bipolar current, as preference may indicate.

The removal of these growths by the high frequency current is to be preferred to excision, as the scar left is soft and pliable and there is less danger of leaving a strictured urethra.

The instrument is subject to improvement in that it could be electrically lighted. It may also be sheathed in metal, leaving sufficient dielectric exposed about the slot so that sparking would not occur. In this case the handle would serve as a binding post and the spectrum itself as the indifferent electrode.

668 E Street.

### IODIN DOUCHES IN THE TREATMENT OF TRICHOMONAS VAGINALIS\*

By HERVEY K. GRAHAM, M. D.  
San Diego

THE treatment of *Trichomonas vaginalis* in our hands has been satisfactory only so long as the patient has remained under treatment. With the discontinuance of treatment, the vaginal discharge and irritation have returned together with the demonstration of the organism in the smear. Various medicated tampons, mercurochrome, powdered boric acid, bisodal, alkaline and permanganate douches have been used with only temporary satisfactory results.

The substitution of weak iodine douches for the douches formerly used has brought results which are most gratifying inasmuch as they are permanent. The lesions of the mucous membrane clear rapidly and prompt relief from the vaginal irritation and discharge is experienced. Repeated examination of the vaginal smear shows the organism to be permanently eradicated.

Our present method for the treatment of *Trichomonas vaginalis* follows that advocated by Davis with the substitution of an iodine douche for the alkaline douche. Our procedure may be outlined as follows: Two or three times a week the mucous membrane is washed with green soap and water, dried, painted with five per cent mercurochrome, and the vagina packed with alkaline powder containing bismuth salicylate; on alternate days the patient uses a douche consisting of one dram of tincture of iodine to one quart of water.

2001 Fourth Street.

\* From the Rees-Stealy Clinic, San Diego.

# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## CHRONIC BRONCHIAL ASTHMA

ALBERT H. ROWE, OAKLAND.—Bronchial asthma due to any cause, when untreated usually becomes more persistent and chronic. Such chronic bronchial asthma may be discussed under two headings: (1) the controllable type, and (2) the intractable type.

1. Fortunately the controllable cases constitute approximately 90 per cent of the total.<sup>1</sup> They are due to one or more of the various allergens which, for convenience, may be classified under the headings: pollens, foods, animal emanations, dusts, fungi, orris root, and other miscellaneous substances. The value of a carefully taken history in the determination of the allergens causing the asthma must be emphasized. Cutaneous tests with a large number of allergens of all types should be routine. Thereafter intradermal tests with those important allergens to which negative or questionable reactions occur are important. Because of the absence of definite cutaneous tests the use of 1-200 or 1-100 dilutions of the testing extracts is permissible. Positive tests lay suspicion on the reacting allergens, the etiologic rôle of which can gradually be decided by therapy based on such reactions. The occurrence of negative reactions in about 10 per cent of patients sensitive to pollens and other inhalant allergens and in about 75 per cent of patients sensitive to foods must be remembered. This necessitates the use of trial therapy with inhalant allergens or environmental control which removes all suspected allergens of this type from the patient as a diagnostic aid. In my experience and in the experience of other physicians the use of my "elimination diets" for diet trial in patients suspected of food allergy has been of great help. When skin reactions to foods occur, the effect of the exclusion of such specific foods may be determined or the "elimination diets" may be used, being modified according to the reacting foods.

The controllable cases of bronchial asthma usually require prolonged supervision over a period of one or even several years. The patient must coöperate most conscientiously. Pollen-sensitive patients frequently require perennial therapy for two or more years. Good effects from such treatment, as with other types of therapy, are usually evident in a few weeks, but permanent desensitization requires the longer period. Food allergy necessitates prolonged supervision so that unwitting breaks of the diet may be determined and the patient can be encouraged to hold to the diet,

thereby bringing about possible desensitization. Hypodermic or oral desensitization to foods may also be tried. Desensitization to various animal emanations or dust extracts prepared from the patient's environment or to other miscellaneous allergens, such as orris root or pyrethrum, may be indicated as the control of the patient progresses. All of this requires time and without it the physician cannot obtain satisfactory results.

The occurrence of bacterial allergy in bronchial asthma becomes less evident as I study my patients with increasing care for the presence of the various other allergies already discussed. In my experience I have records of only five or six patients whose asthma has been definitely controlled by the use of vaccines or through nasal surgery. Moreover several confrères specializing in nose and throat have few, if any, patients whose asthma has been cured by their surgical therapy. Therefore my opinion continues to be that bacterial allergy is rarely the main cause of asthma. Certainly in childhood it practically never occurs, and it is quite uncommon in adult life. However, obvious infections in the sinuses, together with polyps, should receive surgical attention, but only after careful allergic control has been established. Likewise, vaccines, especially of bacteria which produce positive intradermal tests, should be used in selected cases especially where purulent bronchitis or obvious sinusitis is present. The possibility that benefit from such therapy may be nonspecific in nature is well recognized, though in rare patients specific desensitization seems to occur. The raising of specific or general immunity by stock or autogenous vaccines undoubtedly occurs, and to the benefit of the patient.

2. Intractable asthma becomes less frequent as the diagnostic and therapeutic procedures already outlined are used more persistently and intelligently by the physician. However, a few patients continue to have mild or severe asthma in spite of all effort. In such patients the possibility of a bronchiectasis or chronic emphysema must be kept in mind. The occurrence of bronchial constrictions, foreign bodies, enlarged glands, or inspissated mucus as a cause of wheezing must be remembered. Myocardial weakness or coronary sclerosis also produce symptoms simulating asthma. Obscure pulmonary or glandular tuberculosis should be considered.

It is my opinion also that certain patients may be sensitive to such a large number of inhalants or foods with or without skin reactions that the control of their allergies is very difficult. Where such allergies are evident it is most important to continue indicated therapy for two or three

<sup>1</sup> Rowe, A. H.: Food Allergy—Its Manifestations, Diagnosis and Treatment, with a General Discussion of Bronchial Asthma. Lea & Febiger, Philadelphia, 1931.



years, modifying it as indications arise, for such persistence is not infrequently awarded with success.

With intractable cases the use of the iodids by mouth or by vein, the free use of adrenalin or ephedrin for relief, peptone therapy by mouth, subcutaneously or by vein, and the use of non-specific protein therapy are justifiable. Prolonged physical rest is always of value. Roentgen-ray therapy of the lungs or the spleen has failed in my hands, and reports of Doctor Piness indicate that hyperpyrexia induced by diathermy is useless. As final advice I would again emphasize the importance of continued search for possible inhalant or food allergies and of prolonged coöperation of the asthmatic patient with the physician.

\* \* \*

SAMUEL H. HURWITZ, SAN FRANCISCO.—Not infrequently physicians express their disappointment with the results of treatment of the chronic bronchial asthmatic. Reams, they say, have been written during the past decade about sensitization, allergic manifestations, cutaneous tests, food allergy, and what not, and yet the chronic bronchial asthmatic continues to wheeze merrily on. The open sesame in the treatment of the chronic bronchial asthmatic has not yet been found nor is it likely to be found in the application of one idea or one therapeutic measure to the treatment of these patients. Our knowledge of the importance of allergy in the pathogenesis of certain forms of asthma has no doubt led to very striking therapeutic results in this type of the affection. It has, however, served in an even greater measure to awaken a new interest in these chronic sufferers and to call forth a greater optimism and willingness of physicians to do their parts in making these invalids more comfortable both physically and mentally.

Bronchial asthma should be regarded as something more than an effect resulting from a single process. A broader conception of the disease is bound to lead to more successful therapeutic measures. One cannot escape the conclusion that there exists in asthmatics a hereditary constitutional defect in which every cell and tissue is profoundly affected. It is not easy in the present state of our knowledge to define in terms of biologic changes in what way an individual with an allergic constitution differs from a normal person. Some of the characteristics of the allergic constitution which have been stressed by various students of this subject are hyperexcitability of the sympathetic nervous system and neurocirculatory apparatus, increased permeability of the skin and mucous membranes, and a lack of reactive power against sensitizing agents. The increased vulnerability of the skin and mucous membranes of such individuals may help to explain why it is that they become sensitized to weak allergens which produce little or no effect upon the normal person. The importance of this hereditary factor in allergic asthma has been stressed in order to

point out better the reasons why the results of treatment by specific desensitization are at times disappointing and incomplete. Desensitization in such individuals may temporarily remove from the field of action one or more allergens and thereby give relief from symptoms, but it cannot change fundamentally the altered reactivity of the body cells.

From the viewpoint of preventive treatment it is important that clinical and laboratory methods be found and developed for the early recognition of the allergic state, so that unnecessary exposure of such persons to powerful sensitizing substances may be prevented. It is also essential that general therapeutic measures be early undertaken to lessen the hyperexcitability of the sympathetic nervous system and to modify the vulnerability and irritability of the mucous membranes. A well balanced, high vitamin-containing diet is of the greatest importance, particularly in those chronic bronchial asthmatics whose vitality has been depleted by a long illness and many sleepless nights. To this should be added sunshine, natural or artificial, cod-liver oil, and large doses of calcium, the latter not so much for the purpose of overcoming bronchospasm, but rather to diminish neurocellular hyperexcitability and decrease the permeability of cell membranes.

It may well be that specific desensitization to inhalant and ingestant allergenic substances accomplishes little more than a more or less prolonged modification of the allergic state. The exact mechanisms underlying desensitization of a hypersensitive patient are little understood. It may be assumed that in some way the permeability of the cells lining the mucous membranes of the body is lessened, so that they no longer react unfavorably to certain protein substances, contact with which had heretofore given rise to an allergic reaction.

Specific desensitization is frequently very difficult because of the great prevalence of multiple sensitization, which is the rule with individuals with an allergic constitution. In these instances it becomes necessary to alter the allergic balance by nonspecific agents, such as peptone or vaccines.

Another great stumbling-block in the treatment of the chronic bronchial asthmatic is the great incidence of infection among them. Although it is generally recognized that secondary infection is commonly grafted on an allergic mucous membrane, the great importance of primary infections of the upper and lower respiratory tract as a cause of chronic asthma is only now receiving due emphasis. In our experience many of the disappointing therapeutic results are obtained in the chronic asthmatic whose symptoms are the result of sinus disease, chronic bronchitis, pneumonia, influenza or, in children, pertussis. Treatment of this group of chronic asthmatics should be directed toward the removal of obvious foci of infection and improvement in the patient's general resistance to infection.

The best results in the treatment of nasal sinus disease in the chronic bronchial asthmatic can

be achieved only by the close coöperation of the rhinologist and internist devoting their time and efforts to a study of these patients.

Finally it should be emphasized that the unstable psychic mechanism of the chronic bronchial asthmatic requires encouragement. Every conscientious effort to help him on the road to improvement by all available means is of great psychotherapeutic value.

\* \* \*

GEORGE PINESS AND HYMAN MILLER, LOS ANGELES.—The doctor's rôle in the care of the asthmatic must be played with the realization that he is caring for a patient suffering from a chronic constitutional disease which produces periodic disability of varying degrees of severity. There is no question of a cure here just as there is no question of a cure in diabetes. The doctor's efforts are directed toward the giving of sufficient relief so that his patient may lead as normal an existence as is possible.

The modern treatment of asthma aims to accomplish this by seeking out the patient's sensitivities and idiosyncrasies so that he may be forewarned with regard to offending substances which can be avoided, or forearmed by desensitization against those which cannot. This knowledge is best obtained by means of a careful and searching history of the patient, his environment, and his diet, and by means of skin tests. Skin tests, *for which no adequate substitute* has been found, are to asthma what the Wassermann reaction is to lues, and the blood sugar determination is to diabetes. To deny them to the allergic individual is as reprehensible as to deny him the relief afforded by adrenalin during an attack of asthma.

Aside from measures directed toward the prevention, much of the doctor's efforts are directed toward the relief of individual attacks. Before discussing this phase of the care of the asthmatic, we must consider the question of differential diagnosis, upon which is frequently dependent the success or failure of treatment.

Perhaps in no condition is a careful family and personal history of so much aid to the doctor as in bronchial asthma. The hereditary and constitutional character of the disease and the periodicity of its symptoms are ordinarily easily brought out, and when weighed in conjunction with a careful and complete physical examination, x-ray of the chest, and skin tests, make possible its differentiation from cardiac disease, pulmonary tuberculosis, newgrowths of the lungs, foreign body in the lung, simple pulmonary emphysema, bronchiectasis, etc. However, it must be realized that practically all of the above conditions may coexist with asthma resulting either from its chronicity, or having asthma as a symptom. Because of limited space we shall only discuss the relief of asthmatic dyspnea in individuals suffering from uncomplicated bronchial asthma. These may be divided into three groups.

The first group consists of individuals who have a simple spasmodic acute attack of moderate or great severity wherein efficient treatment for the relief of symptoms consists of the administration of epinephrin.

The second group consists of those individuals who, in addition to the above acute recurring paroxysms, have persistent dyspnea. These individuals may also be temporarily relieved by the administration of epinephrin, and at times where there is a definite periodicity, warded off by the administration of ephedrin about one-half hour before the expected onset of the attack.

The third group consists of those individuals who have persistent, violent, and at times fatal dyspnea. It is this group which causes the greatest apprehension, not only to the patient but to the doctor who has exhausted all his remedies and ingenuity in attempting to give the patient some measure of relief. These patients have often been given adrenalin to the point where frequent and repeated doses do not in the slightest degree relieve the spasm of the bronchi or diminish the marked cyanosis. They have frequently been exposed to any number of remedies such as calcium chlorid, sodium iodid intravenously, inhalations of oxygen, asthma smoke powders, and chloroform. They have frequently had many doses of several of the narcotics such as codein, pantopon, and morphin. At times, also, they have had atropin, and scopolamin. Not infrequently have we seen death result in individuals such as these, and we have come to feel that in each instance the narcotics have been directly responsible, so that it is now our practice in cases of the severity above described not to administer any form of opium or its derivatives.

The following regimen has often been instituted with the result that we have been able to carry such patients through a severe crisis of prolonged asthma:

1. The administration of adrenalin is entirely discontinued.
2. Caffein is given hypodermically at intervals of three hours.
3. Chloral and bromids are given per rectum in large doses (sodium bromid, gr. LX, chloral hydrate gr. XXX).
4. Fluids are forced preferably by rectum, or if this is not possible, intravenously, as it is our experience that these patients are prone to become markedly dehydrated.
5. If cyanosis is marked, carbogen inhalations are given. This has proven far more effective than inhalations of oxygen alone.
6. If the secretions are very dry, sodium iodid is administered intravenously every three or four hours until a mild iodism is produced.
7. We have often found that the skin of the patient is cold and clammy and much comfort can be given by the application of hot-water bags to the point where the skin assumes its normal temperature.



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## EDITORIALS\*

### MEDICAL ECONOMICS ARTICLES IN THIS NUMBER OF CALIFORNIA AND WESTERN MEDICINE

*The Medical Economics Symposium at the Sixtieth Annual Session of the California Medical Association.*—At this year's annual session of the California Medical Association which was held at San Francisco in April last the subject of medical economics was given special prominence. The Council and Program Committee brought about this emphasis of the topics through the presentation of the medical economics reports and papers at general, instead of at section meetings. Much interest was evidenced in the discussions by the members who were in attendance.

\* \* \*

*These Medical Economics Papers Are Printed in the Current Number of California and Western Medicine.*—To better bring home to the members at large a consideration of the medical economics papers which were read at San Francisco, these are being printed as a symposium in this September number of CALIFORNIA AND WESTERN MEDICINE.

The series starts off with the report of the California Medical Association Committee on Medical Economics, which was made by its chairman, Dr. John H. Graves of San Francisco. In

\* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column.

sequence then follow the papers of Drs. Daniel Crosby of Oakland, Rexwald Brown of Santa Barbara, J. Rollin French of Los Angeles, Ralph A. Reynolds of San Francisco, J. L. Pomeroy of Los Angeles, Frank L. Kelly of Berkeley and Charles B. Pinkham of San Francisco.

In addition to the above, several others of the special articles in the current issue have somewhat of a public health or medical economics relationship in that they trench on the domain of preventive as well as of curative medicine. Thus may be mentioned the papers by F. G. Crandall on Jamaica Ginger Paralysis, Glenn Myers on The Mental Hygiene Survey of California, and A. C. Reed on Organized Tropical Medicine.

In the Miscellany Department of this number of CALIFORNIA AND WESTERN MEDICINE are also presented a number of topics which may be of interest in connection with the papers above referred to, because they may be taken as examples of some of the problems which arise in private and public health practice.

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*These Medical Economics Topics Worthy of Serious Thought and Study.*—This exposition of so many papers on subjects of non-scientific nature may not meet with the approval of a considerable number of members of the Association. For such colleagues it may be stated that one of the reasons the papers are massed and printed in a single issue was the thought that through such grouping in one issue the attention of members could be called, not only to the importance of these medical economics problems, but to the extreme and almost insurmountable difficulties which we face when we try to indicate to one another what are practical solutions that would meet with general approval and acceptance.

The situation which confronts us here is akin to that which as physicians we meet again and again, when we are called upon to make diagnoses of certain diseases, the pathology of which is not clear, and in which in the past, empiric and experimental medicine have alike failed to find remedial agents that are satisfactory to either physician or patient. In such disease complexes the large number of therapeutic measures which are mentioned in the literature, at times seem to include a trial of almost every and anything, a condition which nearly always may be taken to indicate that practically all measures are of only slight remedial worth. However, when such obstacles are met with in medicine, it usually means that devoted disciples of our guild give of themselves without stint or hope of reward, in the effort to find ways and means whereby physicians may be victorious; and that through such constant study and effort such work is often rewarded with success.

In similar manner—in these intricate problems of medical economics, which are involved and made more difficult through the close relationship with social and political factors—it is necessary for the medical profession to continue its earnest studies if it would avoid the deplor-



able results in situations which are arising in America, just as they arose in Europe.

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*Physicians to Receive Proper Financial Rewards to Enable Them to Do Efficient Work, Must Be as Alert in These as in Purely Scientific Problems.*—The really big rewards of the practice of medicine are not to be found in unusually large financial returns, but rather in the fulfillment of efficient service to patients and to the public. With such service, however, should come that amount of financial reward which the background of training as well as the nature of the services which are rendered by physicians justly entitles them. Well trained, efficient physicians, as faithful servants of the state and of the public, deserve proper financial remuneration, and have a right to use all legitimate measures to acquire and maintain such.

It would be a truism to state that our modern-day civilization is quite different from that which has gone before, and that here in America our mass production and great material prosperity of recent years—with their elements of wealth distribution quite different from those of former days—present special and new problems to practically all professions and vocations, and particularly so to the guild of physicians. For times have changed. We must acknowledge that we can no longer practice medicine after the manner of previous years, when there was full assurance that all would be well with our economic futures, both for ourselves in our own time, and for our successors.

Therefore, because the times are different, and because new forces are at work which could seriously change medical practice as we understand it, we must analyze the forces in our environments and ask ourselves what would be the places which our profession and which we as individual physicians would be obliged to take, if a new scheme of things based on a so-called state health insurance plan came into existence.

The papers on medical economic topics above referred to are an indication of the thought which colleagues in different portions of California are giving to the consideration of these matters. These fellow physicians have gone to considerable effort to present their respective viewpoints to us. We are not called upon to agree with them in their various contentions, but we can at least read what they have written, and then ask ourselves, each of us, whether we agree or disagree with them in this or that, and why.

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*All County Societies Should Discuss This Symposium.*—The thought suggests itself at this point that this symposium of papers may be made to have a real value to the California, Nevada and Utah Medical Associations if every component county medical society in the three states, in the near future, would give over the part or the whole of an evening in further discussion and analysis of the papers and topics printed in this number of CALIFORNIA AND WESTERN MEDICINE.

If the respective county society program committees would ask three or more local members to bring in critical discussions on different phases of these medical economics topics, and if at such meetings all members would bring their copies of CALIFORNIA AND WESTERN MEDICINE for reference and to be used in asking questions, then some real progress would be made, at least as relates to the creation of a greater interest and alertness on these important problems. For it is no exaggeration to state that these are real and vital problems that are bearing down on the profession for proper solution, and that if we fail to give them our serious consideration and action, then changes in modes of practice are apt to take place which will be anything but satisfactory to us. And this applies to all and every one of us, both in our own time and in the days to follow when our successors will be called upon to bear the brunt of the battle.

In conclusion, permit us to urge again that you give yourself the privilege of reading these articles at an early day and that you seek to have the program committee of your county medical society set aside an evening for further discussion of these medical economics topics. If such coöperation is given, it will be easier for the California, Nevada and Utah Medical Associations to find the paths of procedure that will lead to the greatest protection of both the public and the profession.

#### CALIFORNIA MEDICAL PRACTICE ACT— ITS NEW AMENDMENT RELATING TO BOARD APPOINTMENTS

*The New Amendment Was a So-called "Administration Measure."*—The California Legislature of the present year approved more than one thousand new laws. Some of such, which had to do with medical practice, have been discussed at considerable length in CALIFORNIA AND WESTERN MEDICINE. One of the bills of which practically no mention has been made concerned itself with appointments to the Board of Medical Examiners of the State of California. It was known as an administration measure, and with a large number of similar bills affecting different state boards was passed in the last days of the session. Some of these bills were fought at the time, but with little avail; and a similar result would probably have been the story as regards the state medical examining board measure. In the Miscellany Department of this number is printed the full text of this new amendment. (See page 239.)

\* \* \*

*The New Amendment Makes Possible Radical Changes in Board Personnel.*—As noted in those comments, by virtue of this amendment to California's medical practice act, Governor James J. Rolph, Jr. will have the power within the next six months of appointing five to seven new members to our state medical examining board in case he so desires.

Somewhat analogous powers were given as regards the dental and pharmacy boards, the Cali-



fornia State Board of Health, and other examining boards.

It is not the purpose at this time to discuss this new amendment, but rather to call the attention of the five thousand physicians who form the membership of the California Medical Association to its existence and its possibilities. The Council of the California Medical Association at its September meeting will no doubt give special consideration to this new problem.

\* \* \*

*The Legislature Cannot Pass Laws Affecting the Initiative Boards.*—In passing, it may be proper to again call the attention of the members of the medical profession of California to the fact that the Legislature made no attempt to change the method of appointment to the osteopathic and chiropractic boards of examiners, for the good and sufficient reason that the practice acts of those cults rest on an initiative vote of the people and therefore are beyond amendment by any legislature!

\* \* \*

*What Will Be the Reaction of the Organized Profession to This New Law?*—This new amendment brings to the front the question as to what attitude the organized profession will take in these new premises. Here, as in other matters, there are two sides to the question.

From the standpoint of practical civil politics, the contention is brought forward that an incoming Governor of the State must be entrusted by its citizens with the responsibility of its government. It would seem, therefore, that such an executive should be surrounded by administrative boards which would work to carry out his own, rather than antagonistic policies, the people then judging by the results achieved, whether or not such an executive and his party associates should be continued in office. As regards state boards which spend money raised by taxation for general lay activities such as roads, prisons, etc., such harmonious relationship to the Governor of the State would seem to be quite proper.

When, however, a state board such as that of the Board of Medical Examiners of the State of California, the funds of which do not come from general taxation on property, but from license and similar fees having to do with the right to practice the profession of medicine—a type of class legislation—and when the functions of such a board would seem to be absolutely divorced from the political activities of the State, then the question of the need of special intervention by a newly elected chief executive of the State naturally comes up for consideration, at least in the minds of members of the medical profession.

\* \* \*

*A Survey of Former Laws May Aid in Consideration of the Problem.*—To better orientate ourselves on the important issues that are involved in this new law, it may aid us if we go back and survey the development and source of the major changes which have taken place in its

medical laws since California passed its first medical practice act, more than fifty years ago. It is possible that some provisions and amendments of former years would be far more appealing to members of the medical profession than this new appointive amendment which was approved by the Sixtieth California Legislature in the present year 1931. We shall therefore present some excerpts from former California medical practice acts, because they indicate what was the nature of the appointing power for board members in the days gone by.

‘ ‘ ‘

#### *The original law of 1876:*

The Appointive Provisions of the original California Medical Practice Act of April 3, 1876, are as follows:

“Sec. 2. Each State Medical Society incorporated, and in active existence on the tenth day of March, eighteen hundred and seventy-six, whose members are required to possess diplomas or licenses from some legally chartered medical institution in good standing, shall appoint annually a Board of Examiners, consisting of seven members, who shall hold their office for one year and until their successors shall be chosen. . . .”

‘ ‘ ‘

#### *The Amended Section Two of April 1, 1878, states:*

“The Medical Society of the State of California, the Eclectic Medical Society of the State of California, and the California State Homeopathic Medical Society, corporations organized and existing under and by virtue of the laws of this State, and no other corporations, society, persons or person, shall appoint annually a Board of Examiners, consisting of seven members, who shall hold their office for one year, and until their successors shall have been chosen and qualified. . . .”

‘ ‘ ‘

#### *California Supreme Court Decision on this amendment of 1878:*

The 1931 “Directory of the California Medical Association” on page XXXIII prints some excerpts from a California Supreme Court decision on the validity of this 1878 amended Section Two. That action is known as *Ex Parte Fraser, Habeas Corpus, No. 10,361*. From this important decision, which established the validity of appointments by the state medical society instead of by the Governor of the State, some excerpts will be given:

“It is urged by counsel for petitioner that the Act of April 3, 1876, ‘to regulate the practice of medicine,’ as amended in 1878 (Laws 1877-78, page 918), is void, because a violation of the Constitutional provision: ‘Corporations may be formed under general laws, but shall not be created by special Act.’

“The second section of the Act confers the exclusive power to appoint boards of examiners upon three medical societies. . . .

“We shall assume that the State, in the exercise of the police power, may provide for boards authorized to examine persons seeking to be admitted to practice medicine, to be appointed by any citizen or citizens named. . . .

“There is nothing in the language of the law to indicate that it was the purpose to confer the power of appointment upon the particular corporations. If it should be made to appear that the societies named had never been incorporated, the power of appointment would still remain to be employed by the socie-

ties, or aggregations of individuals who had adopted the society names mentioned in the Act. The assumption of the power by these individuals or societies would be the assumption of a public duty, and the performance of the duty simply (and disconnected from the reception of fees) would not be profitable to them as societies, nor—should they happen to be incorporated—as private corporations. The second section of the Act confers the power of appointing the boards of examiners upon three named societies which are said to be 'existing corporations'; but, as we have seen, this designation does not oblige us to declare that it was intended to confer the power of appointment on the three societies as corporations. The words 'existing corporations' may be treated as merely '*descriptio personarum*.' . . .

"Our conclusion is that by conferring the authority and imposing the duty of appointing boards of examiners on the three societies named in the Act, the Legislature did not exceed the limitation of its powers contained in the provision of the Constitution above quoted. . . ."

#### *The Amended Law of 1889:*

From the "Fourth Biennial Report of the Board of Medical Examiners of the Medical Society of the State of California," issued in 1889, Section Two as again amended is quoted:

"Sec. 2. Each State Medical Society incorporated, and in active existence on the tenth of March, eighteen hundred and seventy-six, whose members are required to possess diplomas or licenses from some legally chartered medical institution in good standing, shall appoint annually a Board of Examiners, consisting of seven members, who shall hold their office for one year, and until their successors shall be chosen. . . ."

#### *The 1901 provisions:*

The "Official Register and Directory of Physicians and Surgeons in the State of California" for the year 1901 prints again an amended section, which reads as follows:

"Section 1. *Appointment of Board, Quorum.*—There shall be a board, consisting of nine members, which shall be known as the board of medical examiners of the State of California. The members of said board shall be elected as follows: Five members thereof shall be elected by the Medical Society of the State of California, two members thereof by the California State Homeopathic Medical Society, and two members thereof by the Eclectic Medical Society of the State of California. Said members shall be elected annually by said societies, respectively, according to such rules as each society may adopt for the election of members to be elected by it, and the members so elected shall serve for one year, and until their successors shall have been elected and qualified. Each of said societies, respectively, may also elect alternates who shall fill such vacancies as may occur in its representation on the board. . . ."

#### *The Law of 1907:*

In the Twentieth Edition of the "Official Register and Directory of Physicians and Surgeons in the State of California," of August, 1908, the amendment of March 14, 1907, is printed. In this amendment it will be noted that for the first time the three state medical associations submitted lists of members, from which lists the Governor was required to make his appointments. This law provided for the conjoint board in which the osteopathic group was given official recognition. The amendment reads:

"Section 1. The Governor shall appoint a Board of Medical Examiners to be known as the Board of Medical Examiners of the State of California, consisting of eleven members. Such appointments shall be made from separate lists presented to him every second year; five members from a list of ten names presented by the Medical Society of the State of California, two members from a list of four names presented by the California State Homeopathic Medical Society, two members from a list of four names presented by the Eclectic Medical Society of the State of California, and two members from a list of four names presented by the Osteopathic Association of the State of California. Vacancies occurring in the representation of said societies, respectively, shall be filled by appointment from said lists. The appointment of each member shall be for a term of two years, and until his successor is appointed and qualified; *provided, however*, that no professor, instructor, or other person in any manner connected with, or financially interested in any college or school of medicine or surgery or osteopathy shall be appointed a member of said board. . . ."

#### *The Recent Law:*

Coming down to the year 1921, in the "Directory of Physicians and Surgeons, Osteopaths, Drugless Practitioners, Chiropodists, Midwives," as published by the Board of Medical Examiners, one finds the appointive text of the medical practice act which was in force up to August 14, 1931. In this law the specific reference to schools of the healing art was eliminated. The osteopathic group secured a separate board by act of the legislature, later securing the same by initiative vote of the citizens of California. The provisions therein were as follows:

"Section 1. A board of medical examiners to consist of ten members, and to be known as the 'board of medical examiners of the State of California,' is hereby created and established. The governor shall appoint the members of the board, each of whom shall have been a citizen of this state for at least five years next preceding his appointment. Each of the members shall be appointed from among persons who hold licenses under any of the medical practice acts of this state. The governor shall fill by appointment all vacancies on the board. The term of office of each member shall be four years; *provided*, that of the first board appointed, three members shall be appointed for one year, two for two years, two for three years, and three for four years, and that thereafter all appointments shall be for four years, except that appointments to fill vacancies shall be for the unexpired term only. No person in any manner owning any interest in any college, school or institution engaged in medical instruction shall be appointed on the board, nor shall more than one member of the board be appointed from the faculty of any one university, college, or other educational institution. The governor shall have power to remove from office any member of the board for neglect of duty required by this act, for incompetency, or for unprofessional conduct. . . ."

#### *The Present Law—Amendment of 1931:*

The full text of the amended Section One, which was passed in the present year 1931 by the Sixtieth California Legislature, and which became the law on August 14, 1931, is printed in the Miscellany Department of this number of CALIFORNIA AND WESTERN MEDICINE. (See page 239.)



*The Above Excerpts Should Suggest Some Interesting Questions.*—The perusal of the interesting changes in the personnel of the state board of medical examiners, and particularly of the different methods whereby the appointments of board members were made is commended to the careful consideration of members of the California Medical Association. It is especially significant that the Supreme Court of the State of California, in the decision referred to above, declared that appointments by the state medical societies were as valid as when made by the chief executive of the State. It would be interesting to know whether a majority of the members of the California Medical Association would favor a return to such an arrangement.

An initiative law which would contain a section on appointments of board members, and which would incorporate basic provisions such as are contained in the laws of 1901 or 1907, as quoted above, would place the responsibility of maintenance of professional standards directly upon the state medical societies. The California Supreme Court in its decision of the year 1876 stated this could be done without contradiction of the constitution. The whole subject would seem to be worthy of close study and further investigation. Reference to the report which was made at this year's annual session of the California Medical Association by the special committee on the California Medical Practice Act and on a Qualifying Certificate (so-called Basic Science) Act, and which was printed in the June CALIFORNIA AND WESTERN MEDICINE, page 448, will give further information on these important matters.

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*University of California Staff Studies Virus Which Causes Infantile Paralysis.*—Further evidence of the mysterious nature of the filterable virus causing infantile paralysis has just been presented by the University of California Hooper Foundation for Medical Research in a report by Miss B. F. Howitt, research associate in medicine, of studies made under Director Karl F. Meyer.

For some years it has been known that a fluid could be extracted from portions of the brain and of the spinal cord of individuals dying from infantile paralysis which is capable of transmitting the disease to other animals under certain conditions. Because this fluid, even under the most powerful microscopes known to science reveals no traces of living bacteria or germs, but even after being passed through the finest filters available still retains its virulence and is capable of crippling or killing, it is called a filterable virus.

A number of such filterable viruses are known to science, and many theories have been suggested to explain them, including one theory that the virus represents a dormant stage of living bacteria during which they are so small that no technique which man has been able to devise is capable of detecting them. In 1929 two plant physiologists, Vinson and Petre, found that the filterable virus causing the common mosaic disease of tobacco plants was analogous in many ways to a chemical substance.

On the basis of this discovery Miss Howitt began a study of the filterable virus of infantile paralysis, and she found that this virus, as well, has certain similarities to a chemical substance. It shows resistance to treatment with chemicals which kill streptococci, staphylococci, and colon bacilli. After being precipitated, whirled around in centrifuges at a ter-

rific speed, washed, filtered, mixed with acetic acid, heated to 136 degrees Fahrenheit, placed on ice, and otherwise subjected to chemical purification, the fluid and also the material taken out of it in the process were capable of causing infection. By repeated centrifuging, and precipitation with lead acetate, the fluid can be rendered as clear as distilled water, yet it is still capable of destroying the function of certain parts of the nervous system or of dealing death.

Miss Howitt and Doctor Meyer will continue study of the infantile paralysis virus with the hope of further purifying it and perhaps determining something concerning its nature. While no cases of laboratory infection with infantile paralysis have been reported, every precaution must be taken to prevent such infection, including the wearing of rubber gloves at certain stages in the experiment.

This research has been made possible by the financial assistance of an anonymous friend of the university who is supplying \$5000 a year for the support of scientific study and the maintenance of an emergency supply of infantile paralysis convalescence serum.—*University of California Clip Sheet.*

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Medical service in the United States each year costs about \$3,106,000,000, according to estimates by the research staff of the Committee on Costs of Medical Care. The committee, under the chairmanship of the Secretary of the Interior, Dr. Ray Lyman Wilbur, comprises a large group of physicians, public health officials and other experts, economists, representatives of institutions and social agencies. The estimates are based on committee studies directed to the problem of adequate scientific medical service to all people at a cost which they can reasonably meet.

A third of the money spent goes to the physician, according to the estimate. Other expenditures estimated are: Medicine and supplies, \$700,000,000; hospitals, \$550,000,000; dentists, \$400,000,000; nurses (other than hospital), \$112,000,000; public health, \$86,000,000; optometrists and opticians, \$50,000,000; chiropractors and naturopaths, \$3,000,000; osteopaths, \$20,000,000; midwives, \$15,000,000; chiropodists, \$15,000,000, and nonhospital dispensaries, \$5,000,000. Families afflicted by illness pay \$123,000,000 annually for necessary extra household help.

The surveys thus far show wide divergencies in medical expenditures in proportion to income; families with incomes below \$1200 spend about \$66 a year on medical service, those with less than \$2000 spend \$71.48, whereas families with more than \$5000 a year average \$311 and those above \$10,000 about \$520.

The committee has found from available data that the average adult man loses seven or eight days a year from illness, and the average woman eight to twelve days.—Editorial, *Journal Missouri Medical Association*, August 1931.

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*New Health Center at Alhambra.*—The latest building of the chain of health centers, in Los Angeles County, was opened at Alhambra, August 15. It will serve a population of approximately 130,000 people residing in Alhambra, San Gabriel, El Monte, Puente, Baldwin Park, Monterey Park, Lamanda Park, and Altadena, in addition to a large area in the San Gabriel Valley. The building will house an emergency hospital section, clinics for cardiac, metabolic, tuberculous, chest, and well-baby cases, and a laboratory, including roentgen, dental and physical therapy units. The Alhambra district health center is a unit in the Los Angeles County Health Department whose division of bacteriology of the bureau of laboratories is decentralized into eleven branches. Dr. Samuel J. Stewart, district health officer, is director of the Alhambra Health and Welfare Center. The diagnostic and educational services are free regardless of financial or social status, but treatment clinics are restricted to the indigent sick. The Los Angeles County Health Department functions in an area of 3400 square miles under the direction of Dr. John L. Pomeroy.—*Journal of the American Medical Association*, September 13, 1930.



## MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

**The Use of Contact Glasses.**—In view of the recent publicity given to the use of contact glasses by an optometry convention, it might be well to define the exact field of these lenses to the profession at large. In the newspaper accounts it was stated that refractive errors would now be able to be corrected by a new type of glasses without a frame which are to be worn in contact with the eye beneath the lids. This statement is rather overdrawn.

Contact glasses have been used by oculists for a number of years, and recent improvements in design by Professor Heine, as carried out by the firm of Zeiss, have made the field of application wider.

At present the contact glass consists of a thin glass cup which is ground with optical precision. This cup consists of a central portion with a curve greater than that of the cornea and with a diameter slightly larger than the cornea, and a less curved surrounding shoulder which rests on the conjunctiva covering the sclera adjacent to the cornea. When the glass is applied to the eye this shoulder extends up under the upper lid and downward beneath the lower lid.

As the curve of the central portion of the contact glass is greater than that of the cornea there is naturally a space between the cornea and the glass when the shoulder is placed in contact with the eyeball. This space is filled with physiological saline solution of which the index of refraction is about that of the cornea. The optical effect of this is to make the glass, space, and cornea practically homogeneous. Thus the anterior refracting surface of the optical system of the eye is transferred from the anterior surface of the cornea to that of the contact glass. This surface is so ground by the manufacturers as to give it the effective curve of a normal nonastigmatic cornea. Thus the application of the contact glass immediately eliminates all abnormalities of refraction which might be caused by irregularities in the anterior corneal surface.

For this reason contact glasses were first used to correct high degrees of irregular corneal astigmatism and for patients with conical cornea. In these cases a marked improvement in vision can be produced, and although the wearing of the glass causes some irritation, certain individuals become able to wear them several hours at a time. O'Rourke has reported the case of a school teacher with conical cornea who could wear one eight hours at a time. In France two cases have been reported where the irritation was so slight that the contact glass could be worn constantly. Numerous patients are able to wear the glasses for periods of several hours. If myopia or hyper-

opia is present, in addition to the corneal error, a correction for this can be ground into the contact glass also.

In many cases of conical cornea the improvement in visual acuity is remarkable. One patient under my care, who had a visual acuity of 2/200 in the afflicted eye, was able to develop 20/30 acuity with the use of the contact glass. Unfortunately she suffered considerable irritation from the glass and was unable to wear it for long periods.

From what has been said so far, it may be easily seen that because of the inconvenience and irritation of contact glasses, as compared with ordinary spectacles, that they will not come into general use for the correction of the usual errors of refraction. But they certainly have a field of application where the lowered visual acuity is due to corneal irregularities, and can often restore an optically disabled individual to useful work.

It is unfortunate that false publicity or exaggerations are circulated by the lay press concerning contact glasses, because in so doing discredit may be cast upon a special means of improving vision which is effective in selected cases. Contact glasses are not of recent origin, nor will they be a substitute for spectacles as now used; but they have a field in which they have no substitute and that is, in the correction of errors of refraction due to corneal irregularities where the wearing of the usual spectacles is found to be ineffective. M. F. WEYMANN, Los Angeles.

**A Common Surgical Failure.**—Excision of the coccyx, because of pain following fracture dislocation, is a sufficiently common procedure to be of interest to all surgeons. The operation has become notorious because of the fact that too often, and to the chagrin of the surgeon, the preoperative symptoms continue after removal of the injured bone.

The cause of this failure is simple. Removal of the dislocated portion by disarticulation at a joint causes failure. The coccyx should be removed with half of the superjacent vertebral body, usually the last sacral segment, leaving a stump of medullary bone to which the soft tissues adhere firmly in healing, avoiding the formation of a painful bursa over the cartilage-covered stump.

We learned this fact by personal observation of the gross pathology at secondary operation. It could have been learned more easily in texts dated as far back as 1900.

HAROLD E. CROWE,  
Los Angeles.



# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION\*

JUNIUS B. HARRIS.....President  
JOSEPH M. KING.....President-Elect  
EMMA W. POPE.....Secretary

### OFFICIAL NOTICES

**Fall Meeting of the Council.**—The fall meeting of the Council of the California Medical Association will be held at the Hotel Huntington, Pasadena, on September 26, 1931.

\* \* \*

**Extension Lecture Service.**—August in northern counties, and September in the southern portion of the state, mark a return to activity of the various component county medical organizations. The appointed committees or the secretaries of the various societies are now outlining the programs for the coming meetings.

In the September issue of CALIFORNIA AND WESTERN MEDICINE is usually printed an invitation to those members who can spare the time and who have something of scientific interest to present, to enroll as members of the Extension Lecture Service. This service is voluntary, and only indirectly remunerative. There is no fund to cover the cost of expenses of traveling. A call frequently comes at an inopportune moment, but that the service in some way compensates is evidenced by the infrequency of the requests for release. Those who address alert audiences, any one of whom may later discuss points in the talk, are given an invaluable training in clear and rapid thinking, lucid expression and rebuttal in discussion.

Interest in county society meetings is stimulated by having one paper on the program by an outside speaker. Some secretaries regularly call upon the Extension Service.

Will any members who have talks of medical value, who can hold the interest of their audiences, and who are willing to respond to calls from the various county societies, furnish their names to this office (2004 Four Fifty Sutter, San Francisco), and the titles of not more than three addresses before the 20th of September?

### COMPONENT COUNTY SOCIETIES

#### VENTURA COUNTY

The regular monthly meeting of the Ventura County Medical Society was held Tuesday, June 9, at the Ventura County Clinic Building. The meeting was called to order by President Wright.

Members present were: Doctors Achenbach, D. G. Clark, Rhymes, Little, W. S. Clark, Wright, Felberbaum, Bianchi, Bardill, King, Shore, and Armitstead.

After reading and approval of the minutes of the previous meeting, the application of Doctor Mosher, who had been on file, was acted upon and approved for membership.

Communications were read.

Doctor Updegraf of Hollywood presented the paper of the scientific program, giving an interesting discussion of corrective plastic surgery, which was well received.

R. B. ARMITSTEAD, *Secretary*.

\*For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellaneous.

## CHANGES IN MEMBERSHIP

### New Members

#### Los Angeles County—

|                       |                       |
|-----------------------|-----------------------|
| James L. Busby        | J. Earl Gossard       |
| Manuel Chavez         | Ernest M. Johnstone   |
| M. Eugene Clark       | Francis M. McKeever   |
| Denver D. Coleman     | Claude K. Movius      |
| Jay B. Cosgrove       | Ben King Parks        |
| James H. Cryst        | Clarence C. Reed      |
| Edward B. Dewey       | Harry A. Shafor       |
| George Eugene Dodge   | Dennis Vincent Smith  |
| William Vernon Dunbar | Raymond W. Swinney    |
| Clyde K. Emery        | George P. Waller, Jr. |
| Wendy Stewart Emery   | Robert Edwin Wyers    |

*Merced County*—Hartley G. Dewey.

*San Bernardino County*—George W. Clark.

*San Diego County*—William Holmes Ross.

*Santa Clara County*—Milton Alexander Premo.

### Transfers

Roscoe W. Cavell, from Los Angeles to Kansas.  
Warren E. Page, from San Francisco to Alameda County.

### Deaths

**Burnham, Marjorie Bonthrone.** Died at San Diego, June 26, 1931, age 54 years. Graduate of University of Michigan Medical School, Ann Arbor, 1903. Licensed in California, 1925. Doctor Burnham was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

**Coleman, Charles La Grange.** Died at Oakland, July 25, 1931, age 52 years. Graduate of Cooper Medical College, San Francisco, 1903. Licensed in California, 1903. Doctor Coleman was a member of the Alameda County Medical Association, the California Medical Association, and the American Medical Association.

**Hassler, William Charles.** Died at San Francisco, August 1, 1931, age 63 years. Graduate of Cooper Medical College, San Francisco, 1892. Licensed in California, 1893. Doctor Hassler was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Hayden, Thomas M.** Died at Carmel, August 3, 1931, age 77 years. Graduate of College of Physicians and Surgeons, Keokuk, Iowa, 1874. Licensed in California, 1876. Doctor Hayden was an honorary member of the Fresno County Medical Society, the California Medical Association, and the American Medical Association.

**Meyers, Isadore Leon.** Died at Long Beach, August 16, 1931, age 48 years. Graduate of Northwestern University Medical School, Chicago, 1905. Licensed in California, 1921. Doctor Meyers was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

**Taylor, James Edward.** Died at Redding, August 3, 1931, age 59 years. Graduate of the University of California Medical School, San Francisco, 1899. Licensed in California, 1899. Doctor Taylor was a member of the Shasta County Medical Society, the California Medical Association, and the American Medical Association.



WILLIAM CHARLES HASSLER

## OBITUARIES

William Charles Hassler  
1868-1931

Dr. William C. Hassler, San Francisco public health officer, died suddenly at his home on August 1, 1931. Doctor Hassler had been ill for several weeks with a minor ailment, and the seriousness of his condition was not known to the general public.

Doctor Hassler was born in Calaveras County in 1868. He graduated from Columbia University and Stanford University and Cooper Medical College. He was made chief sanitary inspector of the city in 1900, and in 1915 he became health officer.

Doctor Hassler prior to his death had become an international authority on public health matters and represented the United States at the Public Health Conference at Geneva in 1926.

He was past president of the American Public Health Association and was past master of California Lodge No. 1, F. and A. M., and a member of the California Commandery and the Grand Commandery of the Knights Templar.

In 1929 he represented Secretary Wilbur at the Washington Child Health Conference, and had taken an active part in the forming of the present charter of San Francisco.



Adam Adolf Haas  
1873-1931

On July 26, 1931, Dr. Adam A. Haas died in San Francisco. Doctor Haas was a native of Germany, having been born in the Palatinate, southern Germany. His early youth was spent in the United States, and he was a graduate from the University of Chicago. While doing postgraduate work in Germany in 1914, he served at the front as medical officer with the Germany army.

Doctor Haas is survived by his wife and four sons, who are now living in Germany.

*The Coronary Artery in Health and Disease.*—Under this caption Herrick,\* whose reputation as an internist is widespread throughout this country, but whose special claim to fame rests upon his accurate original description of coronary occlusion, a condition which is now so generally recognized everywhere as one of the most important causes of sudden death, discusses in a part of his presentation the mechanism of production of heart pain. It is pointed out that there are two main theories advanced as to the causation of the anginal syndrome. The one ably supported by such outstanding men as Allbutt and Wenckebach, as well as Vaquez, holds the pain is due to a stretching of the diseased wall of the aorta. The older theory contends that pain is due to spasm or disease of the coronary artery or to perversion of function of the muscle supplied by that artery. This theory is the older of the two, but after Allbutt's pronouncements was largely discarded. Now the pendulum is swinging the other way, and an increasing number of physicians are becoming adherents of the coronary artery theory. In substantiation of this statement, Herrick details some twelve arguments which certainly would suggest, to the clinical observer at least, that heart pain is due to coronary dysfunction. Most of these arguments are old ones, as for example, the fact that nitrites dilate the coronary, and relieve pain; that angina is rare in syphilis, although aortic disease is extremely common; that angina is infrequently found in auricular fibrillation; that angina is rare in "chronic myocarditis"; and that adrenalin causes anginal attacks in old people, but not in younger individuals in whom there is no presumable coronary lesion. Some of the more advanced theories that would substantiate the coronary idea include the fact that the hypoglycemia of insulin causes anginal pain due to low sugar content of the arterial blood; moreover, anemia may produce anginal pain as a result of insufficient oxygen to the heart muscles when under stress; anginal pain may occur in hyperthyroidism; the heart muscles again being poorly supplied with blood through the damaged artery, when an increased amount of blood is necessary on account of a heightened metabolism; electrocardiographic evidence is very much more suggestive of a muscular degeneration as a result of coronary disease than to disease of the aorta; and certain vasomotor phenomena as Raynaud's disease are associated in a suggestive way with angina.

Herrick very justly states that the ultimate decision as to the causation of anginal pain has not been reached, and that only through the coöperation of the pathologist and practitioner of medicine, the experimental physiologist, and the student of electrocardiography will the enigma be solved.—*New Orleans M. and S. J.*, August 1931.

*Medico-Legal Experts.*—In his masterful retiring address, the last president of the Rhode Island Medical Society made a splendid suggestion—that the society establish a bureau of medical experts, willing, capable, diplomatic, and of unquestioned ability, to act as witnesses in court in medico-legal cases.

As a good medical witness must have an unusual taste for that work in order to create confidence in the courtroom and be of value to impartial justice he is serving, he requires, above all, unquestioned knowledge in that branch of medical science of which at the time he is the exponent. He must be brief and concise in his answers without going astray of the subject in hand. He must volunteer no uncalled-for information. He must have a "flare" for legal procedure, exactness and nicety of expression, and withal a sense of humor which can bear untroubled the possible taunts and irony of cross-examination.

Obviously such a bureau would list only the names of those who desired this type of work and who, in the opinion of the society, could really qualify as experts—true specialists of unimpeachable reputation and experience.—*Rhode Island M. J.*, August 1931.

\* Herrick, James B.: *Am. Heart Jour.*, 6:585, 1931.



## MISCELLANY

Under this department are ordinarily grouped: News; Medical Economics; Correspondence; Twenty-five Years Ago column; Department of Public Health; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the twentieth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

### NEWS

**Pacific Association of Railway Surgeons.**—The twenty-ninth annual meeting of the association was held at the Yosemite National Park on August 28 and 29, 1931, with headquarters at the Hotel Ahwahnee.

The program included papers as follows:

Round-Table Conference: "Reexaminations of Railway Employees." Discussion opened by Dr. C. W. Hopkins.

Presidential Address, Dr. Alson R. Kilgore, San Francisco.

"Head Injuries" (lantern), Dr. C. W. Hopkins.

"Some Advantages of Spinal Anesthesia," Dr. Charles C. Green.

Address: "Surgical Heroism," Dr. R. W. Knox.

"Treatment of Severe Fractures" (motion pictures), Dr. John R. Nilsson.

"Cardiorenal Disease as a Problem with Railway Employees," Dr. Richmond E. Ware, Los Angeles.

"Treatment of Cancer," Dr. J. C. Landenberger, Salt Lake City and Dr. L. R. Cowan, Salt Lake City.

Round-Table Conference: "Résumé of Findings in Ten Thousand Physical Examinations." Discussion opened by Dr. John R. Nilsson.

**Coming Meetings.**—Utah State Medical Association, Salt Lake City, September 9-11. Dr. M. M. Critchlow, Boston Building, Salt Lake City, secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, White Sulphur Springs, West Virginia, September 14-16. Dr. M. A. Tate, 19 West Seventh Street, Cincinnati, secretary.

American College of Surgeons. President, Dr. C. Jeff Miller, New Orleans. Director general, Dr. F. H. Martin, Chicago. Next meeting, New York City, October 12-15.

American Dietetic Association. President, S. Margaret Gillam, University Hospital, Ann Arbor, Mich. Business manager, Dorothy I. Lenfest, 25 East Washington Street, Chicago. Next meeting, Cincinnati, Ohio, October 19-21.

American Hospital Association. President, Dr. L. A. Sexton, Hartford Hospital, Hartford, Conn. Executive secretary, Dr. Bert W. Caldwell, 18 East Division Street, Chicago. Next meeting, Toronto, September 28 to October 2.

American Occupational Therapy Association. President, Dr. Joseph C. Doane, Jewish Hospital, Philadelphia. Secretary-treasurer, Mrs. Eleanor Clark Slagle, 175 Fifth Avenue, New York. Next meeting, Toronto, September 28 to October 2.

American Protestant Hospital Association. President, Dr. B. A. Wilkes, Hollywood Hospital, Hollywood, Calif., Executive secretary, Frank C. English, D. D., Hyde Park Station O, Cincinnati. Next meeting, Toronto, September 25-28.

American Public Health Association, Montreal, September 14-17. Dr. Kendall Emerson, 450 Seventh Avenue, New York, acting executive secretary.

American Roentgen Ray Society, Atlantic City, September 22-25. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, secretary.

**Annual Session Nevada State Medical Association** will be held at Ely, Nevada, September 18-19, 1931.

**Annual Session, Utah State Medical Association.**—The thirty-seventh session of the Utah State Medical Association will be held at the Newhouse, Salt Lake City, on September 9, 10, and 11.

Guest speakers include: Harlow Brooks, M. D., New York University; A. J. Carlson, M. D., University of Chicago; Glen E. Cheley and Herman I. Laff, Denver; William Carpenter McCarty and Walterman Walters, Rochester, Minn.; Arthur Steindler, Iowa; N. Vern Peterson, New York; Howard Morrow, Chauncey D. Leake, Roderic P. O'Connor, Harrington Graham, John B. Doyle, and Walter E. Leonard from California; Frederick A. Kiehle from Oregon and Robert Levy from Colorado.

**American Congress of Physical Therapy.**—The tenth anniversary session of the American Congress of Physical Therapy will be held October 5, 6, 7, 8, 1931, at the Hotel Fontenelle, Omaha, Nebraska. The mornings will be devoted to clinics, while scientific papers will be read during the afternoon sessions. The unusually wide range of subjects and the meritorious papers which will be presented make this program an outstanding one.

For preliminary program and other information write to the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

### CORRESPONDENCE

#### Subject of Following Letter: Another New Drugless Cult for California

The secretary of the California State Board of Medical Examiners has sent to the editor a copy of a recent letter to one of the inspectors of the board, which should be of interest to California licentiates in medicine. Letter follows:

San Francisco, Calif., August 4, 1931.

Albert Carter, Special Agent,  
Board of Medical Examiners,  
909 Pershing Square Bldg.,  
Los Angeles, California.

*Dear Mr. Carter:* We are quite interested in your letter of July 29 announcing that V. M. Crause is connected with the Antithesians, incorporated under the laws of California and embracing benevolent, fraternal, social, economic and commercial activities. This is probably the antithesis of the Chirothesians, who have caused us so much trouble as violators of the Medical Practice Act in the past.

Inasmuch as the Antithesians are all instructed in the "new science of Celesophy," which is announced to be "the science of cell wisdom and deals with the practical application of the cell consciousness when put into practice," we have added to our fifty-seven varieties of so-called drugless healing this new group and have credited Los Angeles as being its birth place.

Very truly yours,

C. B. PINKHAM, M. D.,  
Secretary-Treasurer.

#### Subject of Following Letter: Health Centers Maintained by Health Department of County of Los Angeles

Note: One of the special articles in this number of CALIFORNIA AND WESTERN MEDICINE is by Dr. J. L. Pomeroy, Los Angeles County Health Officer. The following letter gives some interesting information

*Major Health Centers, Los Angeles County Health Department*

| Health Center   | Opening Date                | Location                     | Approximate Cost              |             | Attending Staff | Patient Attendance July 1930-May 1931, Inclusive |
|-----------------|-----------------------------|------------------------------|-------------------------------|-------------|-----------------|--------------------------------------------------|
|                 |                             |                              | Building                      | Equipment   |                 |                                                  |
| Alhambra        | 1930                        | 612 W. Shorb St., Alhambra   | \$123,316.69                  | \$28,159.96 | 17              | 29,263                                           |
| Compton         | 1927                        | 1301 Mona Blvd., Compton     | 54,313.21                     | 15,555.35   | 13              | 27,919                                           |
| East Side       | 1928                        | 678 S. Ferris Ave., L. A.    | 87,551.82                     | 38,869.59   | 34              | 61,042                                           |
| Glendale        | Qtrs. donated by Glen. City | 111 No. Howard, Glendale     | .....                         | 5,638.99    | 19              | 21,486                                           |
| Huntington Park | Qtrs. donated by H. P. City | 6610 So. Malabar, Htg. Pk.   | .....                         | 6,388.70    | 9               | 19,959                                           |
| Inglewood       | Rented quarters             | 101 So. Grevillea, Inglewood | .....                         | 11,436.61   | 15              | 17,001                                           |
| Monrovia        | Bldg. altered 1931          | 211 W. Orange St., Monrovia  | Cost of alterations 10,038.52 | 12,514.50   | 7               | 13,423                                           |
| Pomona          | 1927                        | 280 W. 5th St., Pomona       | 74,972.56                     | 17,629.84   | 15              | 16,436                                           |
| Redondo         | Rented quarters             | City Hall, Redondo           | .....                         | .....       | 4               | 1,946                                            |
| San Fernando    | 1927                        | 604 S. Maclay Ave., S. F.    | 44,559.84                     | 18,487.42   | 14              | 26,654                                           |
| Santa Monica    | 1928                        | 1525 Euclid St., S. M.       | 78,586.16                     | 13,103.46   | 16              | 18,784                                           |
| Whittier        | 1927*                       | 402 S. Greenleaf Ave., Whit. | .....                         | 6,644.55    | 9               | 12,217                                           |

\* Property deeded to County by Whittier Board of Trade.

concerning the Health Centers already established in Los Angeles County and is here printed because it has a bearing on some topics considered in several of the medical economic articles in this number of CALIFORNIA AND WESTERN MEDICINE. The letter follows:

*To the Editor:* Enclosed herewith please find tabulation of information concerning major health centers of the county of Los Angeles, as per your request.

Very truly yours,

J. L. POMEROY, M. D.,  
County Health Officer.

By N. P. LEVIN, M. D.,  
Chief Clinic and Hospital Physician.

\* \* \*

#### Subject of Following Letter: Stipends for Interns

Editorial comment was made in the August CALIFORNIA AND WESTERN MEDICINE on the question which had arisen at the Los Angeles County General Hospital, relative to payment of cash stipends to interns and student nurses. (See August CALIFORNIA AND WESTERN MEDICINE, page 133.)

The matter was taken up with the members of the Board of Supervisors, one of whom is John R. Quinn, a well known alumnus of the University of California and former national commander of the American Legion. Supervisor Quinn espoused the cause of the interns. The following letter shows the happy outcome in this matter:

County of Los Angeles: Board of Supervisors,  
Los Angeles, July 30, 1931.

*To the Editor:* Following up your suggestion on the interns and nurses, I brought the matter to a head Monday at the board and they definitely determined that the place to economize in the hospital was not in the salaries of the interns or student nurses.

Sincerely yours,

JOHN R. QUINN.

## MEDICAL LEGISLATION

### Senate Roll Call on S. B. 175 (Fellom): Which Bill Would Have Given Corporations the Right to Practice Medicine for Profit.

Senate Bill 175 (Fellom) has been discussed in several issues of CALIFORNIA AND WESTERN MEDICINE. In the June CALIFORNIA AND WESTERN MEDICINE, page 419, the vicious features of that bill were commented upon. Also the difficulties which were encountered in fighting the measure.

It is good to know who are with and against, when important issues are at stake. The forty-ninth legislature now belongs to history and as a matter of historical interest an item on page 26 of the *Senate Daily Journal* of May 8, 1931, is here reprinted. The roll call is called to the attention of all California Medical Association members, and especially to component county society committees on public policy and legislation.

That item gives the final Senate vote on Senate Bill 175, above referred to. The item reads as follows:

"Senate Bill No. 175.—An act to define medical and hospital service companies and agents; to provide for the regulation, supervision and licensing thereof; to create a fund therefor; to create the office of Commissioner of Medical and Hospital Service Companies; to provide for the enforcement of said act and penalties for the violation thereof; and to make an appropriation.

"Bill read third time.

"The question being on the passage of the bill.

"The roll was called, and Senate Bill No. 175 refused passage by the following vote:

"AYES—Senators Baker, Carter, Crittenden, Deuel, Fellow, Ingels, Maloney, Moran, Rich, Rochester, Treacy, Tubbs and Williams—13. (Those who voted "aye" voted in favor of having the bill becoming a law.)

"NOES—Senators Allen, Breed, Bush, Cassidy, Christian, Clock, Duval, Edwards, Evans, Harper, Hays, Inman, Jones, McCormack, McKinley, Mixter, Nel-



TABLE 1.—Senators Voting for Senate Bill No. 175

| Name of Senator        | Party | District | County        | Home Address                          |
|------------------------|-------|----------|---------------|---------------------------------------|
| Baker, C. C.....       | R.    | 17th     | Monterey      | National Bank Bldg., Salinas          |
| Carter, Henry E. ....  | R.    | 31st     | Los Angeles   | 1040 Island Ave. Wilmington           |
| Crittenden, B. S.....  | R.    | 20th     | San Joaquin   | Stockton                              |
| Deuel, Charles H.....  | D.-R. | 6th      | Butte         | Chico                                 |
| Fellom, Roy.....       | R.-D. | 14th     | San Francisco | Call Bldg., San Francisco             |
| Ingels, R. R.....      | R.-D. | 4th      | Mendocino     | Ukiah, R. F. D. 2                     |
| Maloney, Thomas A..... | R.-D. | 23rd     | San Francisco | 341 Connecticut St., San Francisco    |
| Moran, John L.....     | R.-D. | 8th      | Tehama        | Corning                               |
| Rich, W. P.....        | R.-D. | 10th     | Yuba          | Marysville                            |
| Rochester, Geo. W..... | R.-D. | 37th     | Los Angeles   | 922 Fidelity Bldg., Los Angeles       |
| Treacy, Timothy E..... | D.    | 21st     | San Francisco | 39 Buena Vista Terrace, San Francisco |
| Tubbs, Tallant.....    | R.-D. | 19th     | San Francisco | 200 Bush St., San Francisco           |
| Williams, Dan E.....   | R.-D. | 26th     | Tuolumne      | Jacksonville, via Chinese Camp        |

TABLE 2.—Senators Voting Against Senate Bill No. 175

| Name                    | Party | District | County         | Home Address                                |
|-------------------------|-------|----------|----------------|---------------------------------------------|
| Allen, James M.....     | D.-R. | 2nd      | Siskiyou       | Yreka                                       |
| Breed, Arthur H.....    | R.    | 16th     | Alameda        | Latham Square Building, Oakland             |
| Bush, David F.....      | R.-D. | 22nd     | Stanislaus     | Oakdale                                     |
| Cassidy, Bert A.....    | R.-D. | 3rd      | Placer         | Auburn                                      |
| Christian, E. H.....    | R.    | 13th     | Alameda        | 1097 D Street Hayward                       |
| Clock, Ralph H.....     | R.    | 33rd     | Los Angeles    | 1216 Security Bldg., Long Beach             |
| Duval, Walter H.....    | R.    | 25th     | Ventura        | Santa Paula                                 |
| Edwards, Nelson T.....  | R.-D. | 39th     | Orange         | 350 South Glassell Street, Orange           |
| Evans H. J.....         | R.    | 35th     | Los Angeles    | 234 N. Canyon Blvd., Monrovia, P.O. Box 272 |
| Harper, William E.....  | R.    | 40th     | San Diego      | 3317 First Street, San Diego                |
| Hays, Ray W.....        | R.    | 30th     | Fresno         | Brix Building, Fresno                       |
| Inman, J. M.....        | R.-D. | 7th      | Sacramento     | McLean Building, Sacramento                 |
| Jones, Herbert C.....   | R.-D. | 18th     | Santa Clara    | Auzerias Building, San Jose                 |
| McCormack, Thomas.....  | R.    | 5th      | Solano         | Rio Vista                                   |
| McKinley, J. W.....     | R.    | 38th     | Los Angeles    | 621 Security Building, Los Angeles          |
| Mixter, Frank W.....    | R.-D. | 32nd     | Tulare         | Exeter                                      |
| Nelson, H. C.....       | R.-D. | 1st      | Humboldt       | 1819 H Street, Eureka                       |
| Pedrotti, J. L.....     | R.-D. | 29th     | Los Angeles    | 225 Wilcox Building, Los Angeles            |
| Schottky, Andrew R..... | R.    | 24th     | Merced         | Shaffer Building, Merced                    |
| Sharkey, Will R.....    | R.-D. | 9th      | Contra Costa   | Martinez                                    |
| Slater, Herbert W.....  | D.-R. | 12th     | Sonoma         | Santa Rosa—Box 96                           |
| Swing, Ralph E.....     | R.    | 36th     | San Bernardino | Garner Building, San Bernardino             |
| Wagy, J. I.....         | R.    | 34th     | Kern           | Bakersfield                                 |

son, Pedrotti, Schottky, Sharkey, Slater, Swing and Wagy—23. (Those who voted “no” voted against the bill becoming a law.)

The senators, with their county and home addresses, who voted in favor of Senate Bill 175, which, if it had been enacted into law, would have given corporations the right to practice medicine for profit, are listed in Table 1.

The senators, with their county and home addresses, who voted against Senate Bill 175 becoming a law, and who therefore have the commendation of the medical profession, are listed in Table 2.

CALIFORNIA STATE FAIRS—  
PUBLIC HEALTH EXHIBITS

The possibility of public health exhibits at California state and county fairs has been discussed in CALIFORNIA AND WESTERN MEDICINE at different times. The 1930 report of the Standing Committee on Health and Public Instruction also emphasized the importance of such exhibits (see JUNE CALIFORNIA AND WESTERN MEDICINE, page 442). The Council of the California Medical Association is giving the subject is serious consideration, and as soon as detailed plans for an exhibit that can be used in different state and county fairs, from year to year, are whipped into form, the Council will proceed further with the plan. (See February 1931 CALIFORNIA AND WESTERN MEDICINE, page 122.)

It may be of interest to note that the Board of Medical Examiners of the State of California inaugurated such an exhibit at the California State Fair grounds at Sacramento. The report thereon by the secretary of the board, Dr. C. B. Pinkham, has some suggestive value and is here reprinted:

For the first time in its history, the Board of Medical Examiners, in conjunction with several other divisions of the Department of Professional and Vocational Standards, placed an exhibit in the California State Fair held in Sacramento August 30 to September 7, 1930.

A placard prominently displayed gave the following concise information regarding the Board of Medical Examiners:

Organized in California under the first Medical Practice Act in 1878.

Has never cost the State of California one penny.

Self-supporting from fees.

Composed of ten well-known competent graduates of medical schools and practicing physicians and surgeons in California.

Passes on credentials, conducts examinations and issues licenses to practice under the Medical Act.

Has a legal staff and three full-time investigators.

Prosecutes violators of the Medical Practice Act.

Disciplines those under its jurisdiction that are guilty of misconduct.

Main office, Sacramento, with suboffices in San Francisco and Los Angeles.

Basically necessary to the functioning of the various branches of State government as far as is concerned the practice of medicine, i. e., state hospitals, compensation insurance, industrial accident commission, department of health, narcotic enforcement, etc.

Issues annually a complete directory listing all licensees in good standing and containing a copy of the Medical Practice Act and much valuable information.

Renders an annual report to the Governor, which is published in the directory.

Average written examinees each year..... 314

Average number of licenses issued annually..... 632

Average annual loss by death..... 187

Applications on file, including deceased and rejected.....20,000

Number of licensees in good standing.....11,388

At the top of the entire exhibit, conspicuously placed, was a large placard reading—"Use care in choosing your doctor."

The exhibit included:

(a) Display of the various printed applications and other forms used in our administrative work.

(b) Beneath a large placard reading "Shun x-ray machines used to remove superfluous hair from your body," were displayed photostatic copies of affidavits and reports of permanent disfigurement following the use of x-ray machines in the removal of unwanted hair from the human body.

(c) Rogues gallery displayed beneath a placard reading "Beware of the Eyesight Swindler," which consisted of photostats of eyesight swindlers with their fingerprint classification; history of various asserted operators of

this fraudulent practice; complaints of victims relating payment of various amounts (some as high as \$2200) for a few drops of sterile water ostentatiously dropped in the victims' eyes by some glib-tongued swindlers. Their methods are more fully explained in this report under the caption "Eyesight Swindlers."

(d) Under a placard reading "Fraudulent credentials seized by the Board of Medical Examiners. Their use is a felony," were exhibited phostats of various fraudulent medical diplomas, credentials, etc., seized by the Board of Medical Examiners, photographs and descriptions of the "sharpers" used and a brief history of each case.

The display aroused great interest in a large number of visitors. We hope it carried a warning message throughout the State that will be most helpful in guarding our citizens against such swindlers.

CALIFORNIA LICENSURE  
STATISTICS

Number of Doctors in Los Angeles County—In Relation to Population

At a recent conference of the Medical Advisory Board of the Health Department of the County of Los Angeles, Dr. J. L. Pomeroy, County Health Officer, made mention of some tables he had compiled showing the number of physicians who had registered for practice in Los Angeles County during the last ten years and the editor requested that a copy be sent him for possible use in CALIFORNIA AND WESTERN MEDICINE. These tables are submitted because they have an intimate connection not only with the standards of practice in the healing art, but with the economic phases of medical practice. (See Table 1.)

In a discussion of medical economic problems, it is quite important to keep in mind the thought that the monetary returns to physicians depend quite a deal upon the total number of doctors who are licensed to practice the healing art. And in California it is necessary to not only take into consideration doctors of medicine, but also all other licentiates who have received licenses to practice the healing art from sectarian examining boards. The figures in the accompanying tables are very significant.

In connection with the tabulations showing numbers of different licentiates in the county of Los Angeles, it may be of interest to note the figures showing number of medical graduate licentiates for California as given by the 1931 *American Medical Directory* of the American Medical Association.

TABLE 2.—Number of Registered Doctors and Population Ratio, County of Los Angeles—On Date July 1, 1931

| On July 1, 1931 | Number Practicing Doctors Each Group | Population Per Doctor By Group |
|-----------------|--------------------------------------|--------------------------------|
| M. D.           | 3,832                                | 619                            |
| D. O.           | 806                                  | 2,943                          |
| D. C.           | 1,272                                | 1,872                          |
| All groups      | 5,910                                | 401                            |

The grouping in Table 3 gives the California figures for the years 1929 and 1931 for physicians and for hospitals.

TABLE 3.—Number of Physicians and Hospitals in California

|              | Physicians |        |              | Hospitals |      |
|--------------|------------|--------|--------------|-----------|------|
|              | 1929       | 1931   | Gain or Loss | 1929      | 1931 |
| California.. | 9,421      | 10,109 | 688 plus     | 423       | 425  |

TABLE 1.—Annual Increase in Registration of Doctors in County of Los Angeles—Years 1921-1930

| Fiscal Year | Doctors of Medicine |       |                   | Doctors of Osteopathy |       |                   | Doctors of Chiropractic |       |                   | Doctors of Science of Chiropractic |       |                   | Midwives |       |                   | Total of All Groups |       |                   |
|-------------|---------------------|-------|-------------------|-----------------------|-------|-------------------|-------------------------|-------|-------------------|------------------------------------|-------|-------------------|----------|-------|-------------------|---------------------|-------|-------------------|
|             | No.                 | Gain  | Pct. Gain or Loss | No.                   | Gain  | Pct. Gain or Loss | No.                     | Gain  | Pct. Gain or Loss | No.                                | Gain  | Pct. Gain or Loss | No.      | Gain  | Pct. Gain or Loss | No.                 | Gain  | Pct. Gain or Loss |
| 1921-22     | 253                 | ..... | .....             | 56                    | ..... | .....             | 6                       | ..... | .....             | 8                                  | ..... | .....             | 0        | ..... | .....             | 323                 | ..... | .....             |
| 1922-23     | 275                 | 22    | 8.7               | 29                    | -27   | -48.2             | 114                     | 108   | 1800.0            | 4                                  | -4    | -50.0             | 1        | 1     | .....             | 423                 | 100   | 31.0              |
| 1923-24     | 396                 | 121   | 51.2              | 97                    | 68    | 231.0             | 7                       | -107  | -97.4             | 8                                  | 4     | 100.0             | 4        | 3     | 300.0             | 512                 | 89    | 21.0              |
| 1924-25     | 307                 | -89   | -22.5             | 47                    | -50   | -51.5             | 392                     | 385   | 5500.0            | 5                                  | -3    | -37.5             | 2        | -2    | -50.0             | 753                 | 241   | 47.1              |
| 1925-26     | 404                 | 97    | 31.6              | 73                    | 26    | 57.4              | 454                     | 62    | 15.8              | 9                                  | 4     | 80.0              | 6        | 4     | 200.0             | 946                 | 193   | 25.6              |
| 1926-27     | 270                 | -134  | -33.2             | 88                    | 15    | 20.5              | 134                     | -320  | -70.5             | 6                                  | -3    | -33.3             | 4        | -3    | -33.3             | 502                 | -444  | -47.0             |
| 1927-28     | 237                 | -33   | -12.2             | 68                    | -20   | -22.7             | 148                     | 14    | 10.4              | 8                                  | 2     | 33.3              | 4        | 0     | 0                 | 465                 | -37   | -7.4              |
| 1928-29     | 237                 | 0     | 0                 | 93                    | 25    | 36.8              | 132                     | -16   | -10.8             | 5                                  | -3    | -37.5             | 1        | -3    | -75.0             | 468                 | 3     | 0.6               |
| 1929-30     | 296                 | 59    | 24.9              | 86                    | -7    | -7.5              | 115                     | -17   | -12.9             | 10                                 | 5     | 100.0             | 1        | 0     | 0                 | 508                 | 40    | 8.3               |
| 1930-31     | 283                 | -13   | -4.4              | 64                    | -22   | -25.6             | 87                      | -28   | -24.3             | 10                                 | 0     | 0                 | 5        | 4     | 400.0             | 449                 | -59   | -11.6             |
| Totals      | 2958                | ..... | .....             | 701                   | ..... | .....             | 1589                    | ..... | .....             | 73                                 | ..... | .....             | 28       | ..... | .....             | 5349                | ..... | .....             |



The grouping in Table 4 shows the increase in the number of physicians for California and for the entire United States, beginning with the year 1901, at which time the American Medical Association undertook the publication of its *American Medical Directory*.

TABLE 4.—Comparative Statement of the Number of Physicians in California and in the United States

| American Medical Directory | California | Total United States |
|----------------------------|------------|---------------------|
| Volume 1, 1906.....        | 3,990      | 121,484             |
| Volume 2, 1909.....        | 4,313      | 134,402             |
| Volume 3, 1912.....        | 4,767      | 137,199             |
| Volume 4, 1914.....        | 5,353      | 142,332             |
| Volume 5, 1916.....        | 5,687      | 145,241             |
| Volume 6, 1918.....        | 5,929      | 147,812             |
| Volume 7, 1921.....        | 6,766      | 145,404             |
| Volume 8, 1923.....        | 7,549      | 145,966             |
| Volume 9, 1925.....        | 8,363      | 147,010             |
| Volume 10, 1927.....       | 8,854      | 149,521             |
| Volume 11, 1929.....       | 9,421      | 152,503             |
| Volume 12, 1931.....       | 10,109     | 156,440             |

Other comparatively recent figures concerning California licentiates of the healing art were printed in the July 1930 CALIFORNIA AND WESTERN MEDICINE, page 517.

CALIFORNIA MEDICAL PRACTICE ACT

AMENDMENT OF 1931 IN RE: APPOINTMENT OF BOARD MEMBERS

At the 1931 session of the California Legislature, Section 1 of the Medical Practice Act, which has to do with the appointment of examining board members, was amended. The Board of Medical Examiners of the State of California has an intimate relationship to the maintenance of standards of professional training and practice. For the information of members of the California Medical Association a list of the present board members and of the amended section is here printed.

The 1931 *Directory* of the Board of Medical Examiners of the State of California gives the following information concerning the terms of the board members as those terms would have expired under the Medical Practice Act prior to the 1931 legislative amendment, which went into effect on Friday, August 14, 1931. (Members who are not reappointed to succeed themselves, or whose successors are not appointed, hold office until their successors are appointed.)

- William R. Molony, term ends August 10, 1931.
- H. M. Robertson, term ends August 10, 1931.
- George Dock, term ends August 10, 1932.
- H. A. L. Ryfkogel, term ends August 10, 1932.
- Harry V. Brown, term ends August 10, 1933.
- P. T. Phillips, term ends August 10, 1933.
- C. B. Pinkham, term ends August 10, 1933.
- C. L. Abbott, term ends August 10, 1934.
- William H. Geistweit, term ends August 10, 1934.
- C. E. Schoff, term ends August 10, 1934.

From the above it will be noted that subsequent to August 10, 1931 and prior to August 14, two members of the board, Doctors Molony and Robertson, could have been reappointed. If such appointments were made by Governor Rolph, then according to the law as amended, the terms of Dr. George Dock and Dr. H. A. L. Ryfkogel will expire on September 15, 1931, and on January 15, 1932, the terms of Doctors Harry V. Brown and P. T. Phillips and C. B. Pinkham will expire.

However, if appointments for the successors of Doctors Molony and Robertson have not been made prior to August 14, 1931, then on September 15, 1931, the terms of Doctors Molony and Robertson would necessarily come to an end. In that event, on January 15, 1932, the terms of Doctors George Dock and H. A. L. Ryfkogel will come to an end and the term of Dr. Brown or Dr. Phillips or Dr. Pinkham will come to an end, through selection by lot among these last three members.\*

In the event that Governor Rolph makes only one appointment between August 10, 1931 and August 15, 1931, then, as the editor interprets the law, the term of either Dr. Molony or Dr. Robertson will end on September 15; and it will be necessary for Dr. Dock and Dr. Ryfkogel to draw lots to determine whether Dr. Dock's or Dr. Ryfkogel's term expires on September 15. On January 15, 1932, the terms of three more members expire, which means that the term of either Dr. Dock or Dr. Ryfkogel (*i. e.*, the one who drew the longer term by lot) will expire and, in addition, two out of the three terms of Doctors Brown, Phillips, and Pinkham will expire, the determination here again being made by lot, as required under the new law.

From the above it is noted that during the next six months at least five, and possibly six or seven appointments, out of the total available ten places may be made by Governor Rolph to the Board of Medical Examiners of the State of California.

Perusal of Section 1 of the amended law will clarify the above. The amended section as presented and passed in the last legislature and approved by the Governor, James J. Rolph, Jr., on June 16, 1931, is printed below:

Assembly Bill No. 1520  
CHAPTER 1006

An act to amend section 1 of the state medical practice act, relating to the tenure of office of the members of the board of medical examiners.

[Approved by the Governor June 16, 1931]

The people of the State of California do enact as follows:

Section 1. Section 1 of the act cited in the title hereof is hereby amended to read as follows:

Section 1. A board of medical examiners to consist of ten members, and to be known as the "board of medical examiners of the State of California" is hereby created and established. The governor shall appoint the members of the board, each of whom shall have been a citizen of this state for at least five years next preceding his appointment. Except as herein provided, the term of office of the members of the board shall be four years and they shall hold office until the appointment and qualification of their successors. Each of the members shall be appointed from among persons who hold licenses under any of the medical practice acts of this state. The terms of the members of the board in office when this amendment takes effect shall expire as follows: two on September 15, 1931; three on January 15, 1932; two on January 15, 1933; and three on January 15, 1934. Such terms shall expire in the same relative order as to such members as the terms for which they hold office before this amendment takes effect, except that members whose terms would have expired on the same day shall determine their relative order by lot. The terms commencing September 15, 1931, shall expire January 15, 1935. Vacancies occurring under the provisions of this section shall be filled by appointment for the unexpired term. No person in any manner owning any interest in any college, school or institution engaged in medical instruction shall be appointed on the board, nor shall more than one member of the board be appointed from the faculty of any one university, college, or other educational institution. The governor shall have power to remove from office any member of the board for neglect of duty required by this act, for incompetency, or for unprofessional conduct. Each member of the board, shall before entering upon the duties of his office, take the constitutional oath of office.

\*At the time the copy for these comments is being sent forward to the printer, it has not been possible for the editor to learn the exact dates of appointments which were pending or which had been made. Thus, the daily press printed an item that Dr. William R. Molony of Los Angeles had been succeeded by Dr. Percival Dolman of San Francisco, but it is not known whether Doctor Dolman's appointment was made prior or subsequent to August 14, 1931, the date on which the amended act went into effect as law.



## MEDICO-LEGAL

### LIEN BILL OF NEW JERSEY—FOR THE PROTECTION OF HOSPITALS

**FOREWORD.**—Mention has been made in past issues of CALIFORNIA AND WESTERN MEDICINE of the great financial and other hardships which have so often fallen upon small California hospitals which were located near dangerous highway crossings, so that the injured persons were taken to such institutions.

These injured persons are often strangers in such communities. They are given emergency and other treatment and care in such hospitals, and when recovery is sufficient depart from the institution—again and again without paying for the expenses of hospital care, to the existence and ministrations of which they may have been indebted for health or life.

At best some of these smaller hospitals in California have a very difficult struggle for existence and can ill afford such demands. To make the matter worse, after some of the automobile accidents, suits have been entered and verdicts for damages have been given, but the persons who had received the hospital care used every means to evade payment of their hospital and medical obligations.

At the 1929 California legislature a lien bill was presented but died in committee. Recently the editor read an item concerning the hospital lien bill of the State of New Jersey, which became a law in 1930. Through the courtesy of the New Jersey Custodian of the State Capitol, copies of these lien bills (New Jersey S. 117, 1930, Chapter 72 and Chapter 158) were secured. The matter is of great importance to many hospitals and physicians of California and would seem worthy of careful study by county medical society officers and committees on medical economics. For that reason the text of the New Jersey law (Chapter 72) and its amendments (Chapter 158) are here printed. These New Jersey laws may have suggestive value for the California Medical Association Committee on Public Policy and Legislation and other standing committees whose members have been studying this problem. Whether a bill could be drafted that would give physicians a lien on money judgments rendered is another phase of the problem to which consideration might be given.

#### CHAPTER 72

*An Act to provide for liens in favor of hospitals and other charitable institutions furnishing care, treatment, and maintenance of persons injured in accidents upon the rights of action, claims or demands of such injured persons against other persons or corporations for damages on account of negligence causing the injuries and upon the proceeds of the settlements of any such claims or demands.*

#### PREAMBLE

Whereas, It is a common occurrence for persons injured in accidents to be taken to hospitals, there to receive care and treatment for their injuries, and to be maintained during such care and treatment, and subsequently for such injured persons, or their estates, to make settlements of their claims and demands against the persons or corporations whose negligence is claimed or alleged to have caused the accident and to collect the amounts of such settlements without paying the hospital charges; and

Whereas, In such cases it seems fair and reasonable that such hospital charges should be paid out of the proceeds of any such settlement, or out of any judgment or award recovered by the injured person, his or her estate, against the person or corporation held to be liable for the injuries received in the accident; therefore

Be it enacted by the Senate and General Assembly of the State of New Jersey:

#### HOSPITALS ENTITLED TO COLLECT FOR SERVICES IN

##### ACCIDENTS

1. Every charitable association, corporation or other institution maintaining a hospital in the State of New Jersey, supported in whole or in part by private charity, shall be entitled to a lien upon any and all rights of action, suits, claims, counterclaims or demands of any person admitted to any such hospital and receiving treatment, care and maintenance therein, on account of any personal injuries received in any accident as the result of the negligence of any other person or corporation, which any such injured person may or shall have,

assert or maintain against any such other person or corporation for damages on account of such injuries, for the amount of the charges of such hospital for such treatment, care and maintenance.

#### LIEN ATTACHED

2. The lien of any such hospital shall attach to any verdict, report, decision, decree, award, judgment or final order made or rendered in any action or proceeding in any court of record of New Jersey, or any public board or bureau, in any suit, action, or proceeding brought by such injured person, or by the estate of such injured person in case of deaths as the result of such injuries, against any other person or corporation for the recovery of damages or compensation on account of injuries received in any such accident, as well as to the proceeds of any settlement thereof, or the settlement of any such claim or demand effected by any such injured person with any other person or corporation whose negligence is claimed or alleged to have been the cause of the said accident or effected with any other person or corporation on account thereof.

#### LIEN HAS PRIOR RIGHT—JUDGMENTS, ETC., IN FORCE—PROVISIO

3. No release of any claim or demand on account of any such injuries, or in respect of any such verdict, report, decision, decree, award, judgment or final order, made or rendered as hereinbefore mentioned, executed by any such injured person, or by his or her estate, shall be valid or effectual, between the parties thereto or otherwise, unless, prior to the execution and delivery thereof, all such charges of any such hospital or institution shall have been paid in full, or to the extent of the full and true consideration paid or given to the injured person by the other party or parties to such release named therein, or paid or given by any other person or corporation in behalf of such other party or parties, and unless such release shall also have been executed by the corporation, association or institution maintaining such hospital; and every such verdict, report, decision, decree, award, judgment or final order shall remain in force and effect until all such charges of any such hospital or institution shall have been paid in full or to the extent of any such verdict, report, decision, decree, award, judgment or final order; provided, that a notice containing the name of the injured person, the date of the accident and the amount of such hospital charges shall be filed within three months after the date of the accident by such corporation, association or institution in the office of the clerk of the county in which such hospital or institution is situated.

#### COUNTY CLERK TO KEEP HOSPITAL LIEN DOCKET—

##### ENTRIES—INDEX—FEES

4. Every county clerk shall at the expense of the county, provide a suitable, well-bound book, to be called the hospital lien docket, in which, upon the filing of any lien claim under the provisions of this act, he shall enter:

The name of the injured person, the date of the accident, the name of the hospital or other institution making the claim, and the amount thereof.

And the said clerk shall make a proper index of the same in the name of the injured person; and such clerk shall be entitled to twelve cents for filing each claim, and at the rate of eight cents per folio for such entry made in the lien docket and six cents for every search in the office for such lien claim.

5. This act shall take effect immediately.

Approved April 7, 1930.

#### CHAPTER 158 \*

*An act to amend an act entitled "An act to provide for liens in favor of hospitals and other charitable institutions furnishing care, treatment, and maintenance of persons injured in accidents upon the rights of action, claims or demands of such injured persons against other persons or corporations for damages on account of negligence causing the injuries and upon the proceeds of the settlements of any such claims or demands," approved April seventh, one thousand nine hundred and thirty.*

Be it enacted by the Senate and General Assembly of the State of New Jersey:

#### SECTION I AMENDED

1. Section one of the act of which this act is amendatory is hereby amended so as to read as follows:

#### HOSPITALS ENTITLED TO COLLECT FOR SERVICES IN

##### ACCIDENTS—PROVISIO—NOTICE FILED WITH

##### COUNTY CLERK—NOTICE TO THOSE

##### LIABLE

1. Every charitable association, corporation or other institution maintaining a hospital in the State of New Jersey, supported in whole or in part by private charity, shall have a lien upon any and all rights of action, suits, claims, counterclaims or demands of any person admitted to any such hospital and receiving treatment, care and

\* Editor's Note.—Items under Chapter 158 are amendments to items which are part of Chapter 72, which act was approved on date of April 7, 1930. The amendments were approved on April 16, 1930.



maintenance therein, on account of any personal injuries received in any accident as the result of the negligence of any other person or corporation, which any such injured person may or shall have, assert or maintain against any such other person or corporation for damages on account of such injuries, for the amount of the reasonable charges of such hospital for such treatment, care and maintenance of such injured person at ward rates in such hospital up to the date of payment of such damages; provided, a notice in writing containing the name and address of the injured person, the date of the accident, the name and location of the hospital and, if known, the name of the person or persons, firm or firms, corporation or corporations alleged to be liable to make compensation to such injured person for the injuries received, shall be filed in the office of the county clerk of the county in which such injuries shall have occurred, prior to the payment of any moneys to such injured person or his legal representative as compensation for such injuries. After the filing of such notice it shall be the duty of the hospital to mail, postage prepaid, a copy of such notice, with a statement of the date of the filing thereof, to the person or persons, firm or firms, corporation or corporations alleged to be liable to make compensation for the injuries sustained by such injured person, if their name and address shall be known.

#### SECTION 3 AMENDED—LIEN HAS PRIOR RIGHT

2. Section three of the act of which this act is amendatory is hereby amended so as to read as follows:

3. After the filing of the notice as herein provided, no release of any judgment, claim or demand by such injured person shall be valid or effectual as against such lien and the person or persons, firm or firms, corporation or corporations making any payment to such injured person or his legal representative as compensation for the injuries sustained shall for a period of one year from the date of such payment as aforesaid remain liable to such hospital for the amount of its reasonable charges due at the time of such payment as aforesaid, to the extent of the full and true consideration paid or given to the injured person, and any such charitable association, corporation or other institution or body maintaining such hospital may, within such period, enforce its lien by a suit at law against such person or persons, firm or firms, corporation or corporations making any such payment.

#### SECTION 4 AMENDED—HOSPITAL LIEN DOCKET KEPT BY COUNTY CLERK—ENTRIES—INDEX—FEES—RIGHT TO EXAMINE HOSPITAL RECORDS

3. Section four of the act of which this act is amendatory is hereby amended so as to read as follows:

4. Every county clerk shall, at the expense of the county, provide a suitable, well-bound book, to be called the hospital lien docket, in which, upon the filing of any lien claim under the provisions of this act, he shall enter:

The name of the injured person, the date of the accident, the name of the hospital or other institution making the claim.

And the said clerk shall make a proper index of the same in the name of the injured person; and such clerk shall be entitled to twelve cents for filing each claim, and at the rate of eight cents per folio for such entry made in the lien docket and six cents for every search in the office for such lien claim.

4. Any person or persons, firm or firms, corporation or corporations legally liable or against whom a claim shall be asserted for compensation for such injuries, shall be permitted to examine the records of any such association, corporation, or other institution or body maintaining such hospital in reference to such treatment, care and maintenance of such injured person.

5. This act shall take effect immediately.

Approved April 16, 1930.

## HEALTH CENTER PROBLEMS \*

### A RECENT COUNTY HEALTH DEPARTMENT EXPERIENCE

The public health work of the city of — is administered by the County Health Department through Section 4225 of the Political Code permitting boards of supervisors to make contracts with

\* Editor's Note.—At the time this statement is sent to the printer the subjects here discussed are awaiting consideration at a conference at which representatives of the Los Angeles County Health Department and the Health Center will be present. The health centers of public health departments are not well understood by many physicians. The editor has deleted the name of the district because that is not necessary in a consideration of the argument by County Health Officer J. L. Pomeroy, and which, in part, is here reprinted. The subject-matter fits in with some of the general discussions which are printed in the Medical Economics symposium of this issue of California and Western Medicine, and on that account is given space in this number of California and Western Medicine.

cities for the performance by the county health officer of city health functions. The rule has been that the city and county appropriate as nearly equally as possible the total budget on the basis of service rendered to the city. In estimating what this 50 per cent will be, we take into consideration two factors: First, the amount of money paid by contract; second, the amount of money accruing to the county health department from the county tax rate in the city. This amount is estimated by reason of the percentage of the total assessment of the city to the total assessment of the entire county. There is no special tax levy for health purposes. The county health department budget is a part of the general tax levy, which last year was 88 cents.

#### ADVANTAGES

The advantages of this method briefly are:

1. That the city gets a definite return from its county tax which it otherwise would not.

2. A much better type of service can be rendered by a consolidation of resources than by individual action.

3. The control of communicable disease is much more efficient because in Los Angeles County the rural area and incorporated cities are one epidemiological problem. Disposal of sewage and refuse, public nuisances of all kinds and food and water supply involve alike both rural and municipal territory.

4. Since the county eventually carries the cost of the results of the ravages of disease in its county institutions from cities and rural area alike, it is a matter of public welfare that the county should attempt to cut down this load. That this is actually being done is seen in the marked reduction in death rates from tuberculosis, typhoid fever, smallpox, infant mortality, and many other diseases.

#### PUBLIC HEALTH WORK STANDARDIZED

In 1925 the American Public Health Association, through the efforts of its Committee on Public Health Administration, adopted definite standards as a result of various surveys made of many cities over the United States. Professor Ira V. Hiscock of Yale University was employed in 1928 to make a survey of the Los Angeles County Health Department. As a result of his report, which was very exhaustive and detailed, the Efficiency Bureau of Los Angeles County reorganized in many respects the work of the county health department. It can, therefore, be said with absolute authority that the public health activities of the department are being carried out according to the highest standards in the United States. The city of Alhambra (one of our contract cities) recently won first prize in the United States Chamber of Commerce contest in which over two hundred cities were entered, and received a bronze plaque commemorating this event.

#### SHALL STANDARDS BE MAINTAINED?

During the period of economic depression, which today seemingly exists everywhere, the question is extremely important as to whether health standards are to be maintained and, if so, why. Experience has shown, not only in Germany but in many other countries where the economic conditions have been infinitely worse than in America, that tuberculosis and many other diseases have shown a very marked and rapid increase, and these increases have been directly attributed to the lack of proper nutrition and the cutting down of welfare and health activities. In Los Angeles County, with a large foreign population, particularly Mexican and Japanese, the history of our department shows that plague, smallpox and typhus fever are a deadly menace hanging over the community at all times. We are peculiarly exposed because of the fact that we are very close to the border of Mexico and, further, that thousands of persons of the lower classes are coming here hoping to find employment. The contracts at Boulder Dam and the advertising of many organizations are partially responsible for this. Furthermore, the reputation of Los Angeles County is seriously endangered as a



tourist center, and next year we are expecting visitors in great numbers to the Olympic games. We are certainly courting great danger in lowering our standards of public health in any respect. It is certainly poor insurance against disaster at this time. News travels rapidly in this day of the radio and airplane. The responsibility for maintaining public health standards is plainly a very grave one and the matter should not be approached lightly.

#### IMPORTANCE OF CO-OPERATION

The county health department has built up, over a period of seventeen years, a coöperative plan which now embraces some thirty-five incorporated cities. Each district is treated as a unit. Variations in costs paid by different cities are largely explainable by two reasons:

1. The charge is dependent upon the service rendered. One cannot compare two cities with equal population and the amounts paid on this basis. The city is charged according to the service rendered.
2. Consideration has to be given the total assessed valuation. In some cities the population is small, but the assessed valuation is high. As a result the amount of the contract is proportionately small.

#### PRESENT SITUATION

The county health department has up at the present time the question of renewal of a health contract with the city of ——. This city has a population of 27,103 people. In the same district are three other cities, namely:

- , population 8619
- , population 7517
- , population 22,022

The unincorporated area in the district has a population of 50,892. The total population of the four cities is 65,291. The total population of this particular health department district is, therefore, 116,153.

The total expenditures for the period ending December 31, 1930, for the entire district, were \$67,844.50. Of this amount the sum of \$49,828.89 was expended inside the four incorporated cities. The sum of \$18,015.61 was expended in purely unincorporated territory. The per capita expenditure, therefore, for the entire district was 58 cents. The per capita for the incorporated cities was at the rate of 76 cents, and for the unincorporated territory 35 cents.

For areas between 100,000 to 250,000 population the results of the United States Chamber of Commerce recent investigations showed that the per capita expenditure was \$1.82. Thus an expenditure of 58 cents for the area including 116,000 persons is well below that of the leading cities of the United States of this population. Such authorities as Dr. Joseph Mountain of the United States Public Health Service claim that the minimum appropriation for public health service should not be less than \$1 per capita, and for even moderately adequate service \$1.50 per capita is needed. The standard of the United States Chamber of Commerce is \$2 per capita. It is therefore certain that the expenditure of 58 cents is indeed a very modest per capita cost for the district which is here discussed.

#### RECOMMENDATION OF PHYSICIANS' BUREAU

At the present time the health department of the county of Los Angeles is requesting a renewal of the health contract with ——. The sum of money requested was \$7080, which was the same amount as for the year previous. Of this amount \$1500 is paid directly by the city for rental of the present Health Center quarters. The balance is paid directly to the county treasurer. This amount is 26 cents per capita, which is less than half of the per capita cost for the district. Taking into consideration the \$7699 coming from the tax assessment roll, the total amount of money available for — City was \$14,779. The combined per capita, then, of both contract and assessment roll gives a total for — of 54 cents. The amount expended in — was \$33,266, a per capita of \$1.22. Thus the city put up on a per capita basis 54 cents and the county 68 cents, and 14 cents

more was expended per capita by the county in — than by the city itself.

The City Council asked the — Bureau of the Chamber of Commerce of — for a report advising them as to what they should do. . . .

#### COMMENT ON PHYSICIANS' BUREAU REPORT

1. The statement made that expenditures of the taxpayers' money at the present time should be minimized to the very limit, and that the health department appropriation should be cut 50 per cent is unreasonable. The Detroit Bureau of Municipal Research, one of the leading bureaus of its kind, after an exhaustive study reported that public health work was one of the fundamental activities that in times of economic stress should not be cut. In July 1930, the total visits of all persons attending various services at the — Health Center was 1109. In June 1931, the number of visits was 3308, an increase of 300 per cent. The year previous epidemics of smallpox, scarlet fever, diphtheria, and poliomyelitis occurred. The staff have made great efforts this year to protect the district against smallpox and diphtheria, with the splendid result that 53 per cent of the children in the public schools are now protected against smallpox, and 45 per cent against diphtheria. The result is that a tremendous reduction has taken place amounting to over 50 per cent in diphtheria. Rabies has been epidemic in the district, resulting in 108 persons applying for Pasteur treatment. A total of \$1154.75 was expended for rabies vaccine to persons who could not pay for treatment. Sixty-five cases of smallpox occurred during the year, and scarlet fever was unusually prevalent. Convalescent serum was furnished free of cost to all physicians requiring it, there being a total of fifty-four cases of poliomyelitis during the year.

There are thirty-eight schools in the — district, with a daily average of attendance of 22,680 children. Besides the work on communicable disease, other divisions are the sanitation and food, which covers the water supply, milk, pure food and drugs, and public nuisances. The milk supply in the district is of the highest quality, but remains so only because of constant work. During the year the epidemic of "jake" paralysis occurred, necessitating the inspection of all Jamaica ginger and quarantining all misbranded material in the district. The enforcement of the state laws on sanitation are mandatory and cannot be neglected without serious results.

The nursing division functions not only for the communicable disease work, but for all the clinics, and as an educational force in the community. A total of nine new clinics and five new conferences was opened during the year. A great deal of time has been spent on tuberculosis, diphtheria, infantile paralysis, scarlet fever, smallpox, and typhoid. It must be remembered that there are seventeen schools in this district under the Los Angeles City Board of Education and that these schools look to the county health department for protection against communicable disease.

The district has been handicapped during the year because of not having a local medical social worker. The cases have been sent to another health center for eligibility, which was a considerable handicap. The county office is planning at the present time to put a medical social worker on duty at the Health Center, which will improve this part of the work. Nevertheless during the year all cases requiring eligibility investigation have been cared for as far as possible. Appended hereto is a complete list of all the personnel, the work performed, and the kinds of services in the district.

Laboratory work is performed for the — district at the — Health Center or the main laboratory in Los Angeles City. . . .

2. The report of the committee states that the city of — and other towns are paying entirely too much for their health service, and that they can easily combine and conduct their own health department cheaper. Attached hereto is a memorandum



discussing the question of distribution of costs, which refutes this statement. The actual division of costs is: county 42 per cent, and cities 58 per cent. If the services from the central office were added the division of costs would be on a fifty-fifty basis.

Relative to the statement that the cities could combine and conduct their own health department, this question is entirely one of standardization. The total amount available at the present time from the various cities is \$12,480. The total population of the cities involved is 65,000 persons. According to the proposition made by the committee, this would mean 19 cents per capita. It is out of the question to assume that any reasonably adequate health service can be maintained for 19 cents per capita, when the average per capita of all cities in the whole United States is about 86 cents. It is true that a city may have just the kind of health service that they pay for. It is true that a budget of \$12,000 might employ two or three persons on a public health program. It is also true that the medical profession could practice medicine as our grandfathers did, with a saddle bag and an assortment of pills. Possibly a good many patients would be just as well satisfied today, and in fact a very large percentage of the population is satisfied today with a cultist-fakir treatment or even a dose of Chinese herbs. Why a community of 65,000 people is willing in many instances to accept cultist, fakir, Chinese herb and many other similar low-standard treatments, is, in the writer's mind, without question the absolute result of many years of neglect on the part of the medical profession and the public health authorities to organize sufficiently so that the entire public realizes the difference in standard between scientific medicine and the cultists and quacks. . . .

Furthermore, assuming that the committee was able to get the four cities to abandon the contract plan, they would still contribute the sum of \$16,422 through county taxes to the county health department, for which, under their own suggestion, they would get absolutely no return.

3. The committee recommends the closing of the Venereal Clinic. It is curious that at a time when Dr. Thomas Parran, Jr., health commissioner of the State of New York, in *The Journal of the American Medical Association* of July 11 of this year, makes an appeal to the profession for more intensive work on syphilis. . . .

In the city of Detroit, which won first prize in the United States Chamber of Commerce contest, 4.2 cents per capita are being expended on venereal disease work. This standard, applied to the ——— district, would mean that at least \$4200 should be expended on venereal disease control. The actual amount expended on venereal disease in ——— district during the last fiscal year was \$740, or seven cents per capita.

How do the physicians of ——— district intend to take care of this problem, which is a public health problem, if the county closes its venereal disease clinic?

4. The committee recommends the closing of the contraceptive clinic. This, together with the venereal clinic, has been condemned as being almost vicious. It is strange criticism, in view of the endowment by the late Dr. H. G. Brainard (who was a president of the California Medical Association) of the Mother's Center of Los Angeles, which is open to the general public, and of the recommendations of the most prominent students of crime, delinquency and eugenics, and the recent endorsement by many leading religious organizations of the world. Let it not be forgotten that every drug store is selling openly all kinds of contraceptive devices, with no restrictions whatever, to man, woman, and child. Furthermore, it is a well-known fact that the abortionist thrives in our midst. It is not of infrequent occurrence that even so-called regular, reputable medical men are arrested as a result of the death of a woman under circumstances of criminal abortion.

Let us, therefore, analyze just what the contraceptive clinic at ——— is for, and what it accomplishes. . . .

5. It is also recommended that the prenatal and well baby clinics be closed. It is contended that these clinics give no service that could not be rendered by any licensed practicing physician in the community. This statement is perfectly true. There is scarcely any public health service on which the same statement would not hold good. On the other hand, the general public is not yet educated to the point where they will pay any physician to take care of a well baby. Particularly at this time, when the incomes of the entire nation have been cut 33⅓ per cent, it is not fair to assume that a very large number of the general public will pay for well baby and prenatal service. It is the duty of the health department to deal with the public. The prenatal and well baby service is intended to reduce the death rate among mothers and infants, so far as causes of ignorance, neglect and carelessness are concerned. It is an educational activity which results, in the long run, as follows:

1. The reference of thousands of persons to the regular physician who would otherwise go to irregulars and quacks.

2. As a result of the recent survey made by Doctor Wilkes of the American Child Health Association, it was definitely shown that the well baby clinic increased the work of the pediatricians throughout the country.

In ——— the Health Center, including all clinics, referred out to private physicians 2085 patients, 486 of whom were referred by the Child Welfare Division. The infant mortality of the county has been reduced from ninety-three in 1915 to forty-six in 1930, which has meant the saving of three thousand babies who otherwise might now be dead. Reference can be made to the Child Health Conservation reports of the White House Conference held by President Hoover, which gives in detail the recommendations of leading physicians and health authorities throughout the nation on this question. . . .

#### IN CONCLUSION

The most serious difficulty in the situation lies in the effect on the citizen layman of the district when his City Council casts a doubt on the necessity and character of the public health work at the health center. The disruption of the work at ———, furthermore, will affect every city under contract in the entire county. Those forces so constantly at work to hamper preventive medicine will undoubtedly take advantage of any rupture between the medical profession and the organized public health forces. The department has stood loyally against these forces, and has prevented poorly trained cultist practitioners from getting in and doing this work. Should the clinics be discontinued, other agencies will capitalize the situation and the medical profession will merely have transferred the situation completely out of their control. In Los Angeles City Dr. ———, who is not a physician at all, has an attendance of about 96,000 mothers annually in her conferences, which are absolutely and entirely private organizations, for which she charges \$1 per patient visit. The department stores and newspapers, the cultist practitioners and other organizations are eager to get into the health center field. When the work of child hygiene was started in the County Health Department, the non-medical doctor just referred to was in complete charge of such clinics all over the county. We have driven her out of the field except in three or four cities. . . .

The situation is one calling for very careful consideration from all angles, and the medical profession and the health department should stand shoulder to shoulder against our common foes—disease and ignorance.

\* \* \*

In connection with the above, and as bearing on topics discussed in other papers in this number of *CALIFORNIA AND WESTERN MEDICINE*, the following letter, which was sent to County Health Officer



Pomeroy of Los Angeles by Dr. LeRoy A. Wilkes, who was prominently identified with President Hoover's White House Conference on Child Welfare, may also be of interest:

It was a pleasure to see your fine organization at work, and to have the opportunity to study its operation at first hand. Your Child Health Conference work is strictly in accordance with the principles of educational and preventive practice as conducted by practically all of the most progressive health departments throughout the country, and advocated by the White House Conference and the association which I represent. It is worthy of note that a questionnaire was sent to all physicians interested in pediatrics, as listed in the American Medical Association Medical Directory (1929 edition), in which were asked the following questions: "Has the educational efforts of health agencies (a) helped (b) not affected (c) hurt your private practice? The replies were overwhelmingly in agreement that such practices had not only benefited the public but also the private practitioners of medicine. Confirmation was also obtained on this opinion by a similar questionnaire sent to general practitioners of ten and of fifteen years' practice who reside in places under 50,000 population.

Dr. Borden Veeder, Clinical Professor of Pediatrics of Washington University (St. Louis, Missouri), made an inquiry among his postgraduate students who took one month's course in "Preventive Pediatrics," held each summer for the last several years, and he found that these doctors came back in order to get the necessary training in preventive practices and educational child health measures "because their patients had been trained to demand such services"—through just such work as is being done so well in your own and similar progressive health departments.

The idea of decentralizing the facilities for medical care of ambulatory indigents in need of treatment is further developed in the West than with us, but the principle is, of course, not new. We in the East, have not been so far-seeing as you in providing these curative services at convenient centers, though we are undoubtedly coming to it. The private practitioners of medicine all over the country, and especially in the East, are each year realizing more and more the value of educating the public. This procedure, so well carried on in your department, not only protects the health of the people which is your sworn responsibility to your community, but gets to the family physician a larger number of cases of defects and disease which the patient is consciously or unconsciously neglecting. "Defects tend to become worse in the large majority of cases; to produce secondary defects; and in many cases become in time irremediable, if neglected" (Cornell). Such important facts as these are unknown to many parents, and when explained to the parent the advice to seek the aid of the family physician is often gratefully appreciated and acted upon.

Some of our less progressive practitioners occasionally give evidence of failure to appreciate the need and value of the procedures in vogue in the Health Conference Centers, but the number is constantly dwindling as they investigate the facts and come to understand that health preservation is largely a matter of education and practice.

When the pioneer health educational work of health departments and in the public schools has been carried on a few more years, I predict that there will be an appreciation and demand on the part of the public of such magnitude that every doctor's office will also become a health conference center as well as a treatment center. At present only the recent graduates in medicine from the more progressive schools are now sufficiently trained in technique and point of view to undertake such services with hope of success.

The report of the Medical Care Committee of the White House Conference which was held in Washington in February of this year at President Hoover's call, will contain much data and information on this subject. Meanwhile congratulations on your accomplishments and on the fine support given you by your board and your professional colleagues.

Sincerely,

(Signed) LeROY A. WILKES, M. D.,  
Director Medical Service, American Child Health Association.

450 Seventh Avenue, New York City, New York.

## COUNTY HOSPITAL PROBLEMS\*

### THE SAN DIEGO COUNTY HOSPITAL SITUATION—HOW IT WAS HANDLED

*To the Editor.*—During the years 1928 and 1929, an attending Staff Committee from the San Diego County Hospital worked out statistics showing that 60 per

\* Editor's Note.—At the request of the editor, Dr. Chester O. Tanner has written this report on some problems which came up for consideration in connection with the work of the San Diego County Hospital. The manner in which the San Diego County Medical Society handled its problem may be of interest and has suggestive value to other component county medical societies of the California Medical Association.

cent of all the hospital patients in the county of San Diego were in the County Hospital; and that the daily census was about 600 patients with a population of approximately 200,000 people in the entire county. It did not seem likely to the Staff Committee that during 1928 and 1929 (prosperous years) 60 per cent of the people were indigents. The basis of the trouble was found to be largely in the Social Service Department over which the attending staff had no real control or supervision. The hospital was really run by one member of the Board of Supervisors (detailed to that duty) and by the superintendent of the hospital, who in turn was appointed by the supervisors. Friends of supervisors, city and county employees, and many other people well able to pay were being hospitalized at the expense of the county of San Diego and were treated absolutely free by the visiting staff, which was composed of members of the San Diego County Medical Society.

The medical society, through its committee, then waited upon the Board of Supervisors with a proposal that a hospital advisory board be created. After numerous meetings and compromises an ordinance was passed creating a Hospital Advisory Board of seven members—two to be appointed by the medical society, two by the Board of Supervisors, one by the California taxpayers, one member of the Board of Supervisors and a seventh, a lay member to be chosen by the first six. According to the state law the hospital management could not be taken away from the supervisors and turned over to this board, but the ordinance did give the board supervision "over the medical personnel, medical policies, and social service."

The Advisory Board was immediately organized and has been functioning since the 1st of January 1931. The supervisors, through their own member on the hospital board, have taken all recommendations 100 per cent, even to the naming of a new hospital superintendent. The committee at all times refrained from all interference with the business end, such as buying supplies, and so on.

As a consequence of the new policies, the social service rules have been tightened and instead of running a daily census of 600 patients in prosperous times, we are now running an average of 450, even in this time of economic depression. We saved \$60,000 out of last year's budget, and the new budget going in for the fiscal year—July 1931 to July 1932—calls for more than \$100,000 less than the previous year's budget. All this has been accomplished without cutting down the caliber of service rendered to the patients. Everybody has to go through the Social Service Department now. The fact that a person is employed by the city or county really is a reason for keeping him out instead of letting him in, because he has a steady job, if anyone has.

Before the change in management the preceding administration was planning to go before the voters with a bond issue of half a million dollars to build and equip a new wing of 150 beds. At present we have 200 empty beds and, under a normal growth, will not require any new additions for probably ten years.

3255 Fourth Street, San Diego.

Mention was made above concerning the ordinance which was passed by the Board of Supervisors of San Diego, governing appointments to a county hospital advisory board. The credit for the original creation of such a board must go to Dr. O. D. Hamlin of Oakland, who, some years ago, was instrumental in working out a readjustment in Alameda County. The Alameda plan was sent to the San Diego County Medical Society for consideration. Inasmuch as such an ordinance might be desirable in other counties, the editor has secured a copy of that of San Diego County, and it is here printed for its reference value:

As taken from the minutes of Monday, October 27, 1931, book 62, page 153:  
In the Matter of San Diego County General Hospital.



## RESOLUTION CREATING EXECUTIVE HOSPITAL BOARD

On motion of Supervisor Hastings, seconded by Supervisor Hurley,

It is Resolved that an Advisory Committee, consisting of seven members, be appointed in the interests of the indigent sick, to serve at the County Hospital to investigate and advise the Board of Supervisors on all matters concerning the medical personnel, medical policy, and social service at said County Hospital and to recommend policies for the administration of the San Diego County Hospital in accordance with the state law.

The said Advisory Committee shall be appointed as follows, viz.:

Two members by the San Diego County Medical Society to be approved by the Board of Supervisors; two representative citizens of the county of San Diego to be appointed by the Board of Supervisors, and approved by the San Diego County Medical Society; one member to be appointed by the San Diego division of the California Taxpayers' Association, and approved by the Board of Supervisors and the San Diego County Medical Society; and one member of the Board of Supervisors to be appointed by the said board. These six members shall appoint the seventh.

Passed and adopted by the Board of Supervisors of the County of San Diego, State of California, this twenty-seventh day of October, 1930, by the following vote:

Ayes—Supervisors: Hastings, Hornbeck, Aul, Good and Hurley.

Noes—Supervisors: None.

Absent—Supervisors: None.

## TWENTY-FIVE YEARS AGO\*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. IV, No. 9, September 1906

From some editorial notes:

*State Society.*—On August 22, the Council of the State Society met in San Francisco and considered, among other things, the advisability of calling a special meeting of the House of Delegates. It will be recalled that the unpleasant jar which occurred in San Francisco last April was so ill timed as to have taken place on the morning of the day on which our Constitution and By-Laws say the officers of the society shall be elected. After careful deliberation the Council concluded that it would not be advisable to call a meeting of the delegates, as it would put many to a degree of trouble and an amount of expense hardly to be justified. . . . The Council also elected Dr. James H. Parkinson of Sacramento to fill the vacancy in its number caused by the death of Dr. Thomas Ross.

*The Sins of Physicians.*—The present trend of the nostrum agitation has evoked much discussion of the sins of the pharmacist. Our JOURNAL has for some few years taken a slightly different attitude and, while recognizing the many and variegated sins of the pharmacist, has also called attention to a few of the sins of the physician which may have been, through precept or example, or even more actively, responsible, in some measure, for the former's sins. . . . Our only hope is in the Council on Pharmacy and Chemistry of the American Medical Association, and in the journal of the Association, which is to undertake to tell us, from time to time, still more of the truth about things pharmaceutical. Do not allow anything to blind you to the enormous value of this Council and its work. . . .

*Another of Our Sins.*—We have heard a good deal about habit-forming nostrums, or "patent" medicines, thanks to *Collier's Weekly* and the *Ladies' Home Journal*, and as a result of all this agitation, the Congress has at last enacted a pure food and drug bill that may really, in the long run, do something. It actually looks to us, from the way the work has been begun, as though a lot of good will come to the public from that law. But let us look at another side of this question of habit-forming drugs. How many of us use sufficient caution in giving or prescribing medicines containing morphine, opium, or cocaine?

\* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

How is it that so many patients know all about sulfonal and trional and other things? Do you mark your prescriptions "Not to be refilled under any circumstances," and if so, do you back up the druggist when he refuses to refill such a prescription and gets into a row with the patient? . . .

*Proprietary Prostitution.*—Some time ago the *Journal of the American Medical Association* published a statement to the effect that most proprietaries, no matter how exclusively they may have been presented to the medical profession at first, eventually became "patent" medicines, in the sense that they were later advertised directly to the public and encouraged self-medication. . . .

*District Legislation Committees.*—Tuesday, April 17, Doctor McKee of Sacramento, senator from that district, addressed the delegates on the subject of medical and health legislation. (See JOURNAL, June, page 176.) We may venture to recall the fact that Doctor McKee suggested the wisdom of forming senatorial district committees of two or three members in each senatorial district, which committees should act with the Committee on Public Policy and Legislation of the State Society. . . . It seems probable that these senatorial district committees will have considerable work to do, for there is always much foolish legislation dealing with health matters presented at every session of the legislature. More work can be done in setting these questions right in the minds of our solons by influential physicians who are known to the legislators, or known to influential constituents, than by rank outsiders; this is the reason for the committees. . . .

From an article on "Report of Twenty-Five Cases of Tuberculosis Treated with Intravenous Injections of Koch's Tuberculin" by Max Rothschild, M. D., San Francisco.

The following paper presents a report of a number of cases of tuberculosis treated with intravenous injections of Koch's tuberculin. It will be only a preliminary report as some of my patients have not been observed long enough to consider them as permanently cured; but in all cases of tuberculosis which I have treated in the last two or three years, the effect of this method has been so encouraging that I consider it my duty to recommend it to you, and to have you try it yourselves. It would have been also more satisfactory to me if a report of a larger number of cases could be given—this paper includes only twenty-five cases—but the number at any rate is large enough to exclude any deception in regard to the efficacy of the treatment. . . .

From an article on "Résumé of Work of Sanitation Performed by the San Francisco Board of Health, from April 18, 1906, to Date" by W. C. Hassler, M. D., San Francisco.\*

Each one is sufficiently familiar with the memorable events of April 18, so that it requires no review of that period for the purposes of this paper. While chaos reigned throughout the city, and it would appear that each man if he attended to his own interests would be justified in so doing, yet to the lasting credit of the inspectors of the department of public health, as if actuated with one accord, they reported for duty within one hour of the disaster. The city was arbitrarily districted and each district placed in charge of an inspector who was directed to secure volunteers, which was done. Squads were detailed to rope off walls and buildings that were in immediate danger of collapse, and other groups were stationed along the fire line to assist in the work of rescue of injured and dead. . . .

On April 19 temporary quarters for the department of public health were established on Laguna Street, and from this point the work of sanitation began. . . .

\* Editor's Note.—In the Obituary Column of this issue is recorded the death of Dr. William C. Hassler, which took place suddenly on August 1, 1931.



# HEALTH OFFICERS OF CALIFORNIA

## BY COUNTIES AND CITIES

The *Weekly Bulletin* of the California State Department of Public Health in its issue of July 25, 1931, printed a list of county and city health officers arranged by counties, the roster being as of June 30, 1931.

The list indicates in a general way the mode of organization of public health work as it exists at this time in California and, therefore, should be of interest to members of the California Medical Association. The roster is as follows:

|                          |                                    |
|--------------------------|------------------------------------|
| Alameda County.....      | Dr. John A. Azevedo, Hayward       |
| Alameda.....             | Dr. R. W. Sanders                  |
| Albany.....              | Dr. Martin J. Lacey                |
| Berkeley.....            | Dr. Frank L. Kelly                 |
| Emeryville.....          | Dr. George Rothganger              |
| Hayward.....             | Nelson E. Clemens, D. V. M.        |
| Livermore.....           | Dr. Paul E. Dolan                  |
| Oakland.....             | Dr. Mark L. Emerson                |
| Piedmont.....            | Dr. Harry J. Smith                 |
| Pleasanton.....          | Dr. J. Hal Cope                    |
| San Leandro.....         | Dr. Luther Michael                 |
| Alpine County.....       | Dr. F. H. Harrison, Minden, Nevada |
| Amador County.....       | Dr. G. L. Lynch, Amador City       |
| Amador City.....         | Mr. Ben White                      |
| Jackson.....             | Mr. Earl J. Garberini              |
| Plymouth.....            | Mr. Pete Laverone                  |
| Sutter Creek.....        | Mr. Grant Shealor                  |
| Butte County.....        | Dr. B. Caldwell, Biggs             |
| Biggs.....               | Mr. B. J. Dennis                   |
| Chico.....               | Mr. Charles E. Tovee               |
| Gridley.....             | Dr. W. S. Lavy                     |
| Oroville.....            | Mr. C. G. Crow                     |
| Calaveras County.....    | Dr. George P. Cooper, Angels Camp  |
| Angels Camp.....         | Dr. E. W. Weirich                  |
| Colusa County.....       | Dr. G. W. Desrosier, Colusa        |
| Colusa.....              | Dr. G. W. Desrosier                |
| Williams.....            | Dr. Charles F. Keith               |
| Contra Costa County..... | Dr. I. O. Church, Martinez         |
| Antioch.....             | Dr. J. B. Blackshaw                |
| Concord.....             | Under County Supervision           |
| El Cerrito.....          | Dr. F. L. Horne                    |
| Hercules.....            | Under County Supervision           |
| Martinez.....            | Under County Supervision           |
| Pinole.....              | Under County Supervision           |
| Pittsburg.....           | Dr. H. E. Peters                   |
| Richmond.....            | Dr. Charles R. Blake               |
| Walnut Creek.....        | Under County Supervision           |
| Del Norte County.....    | Dr. Wilson Stegeman, Crescent City |
| Crescent City.....       | Dr. F. Stump                       |
| El Dorado County.....    | Dr. A. A. McKinnon, Placerville    |
| Placerville.....         | Mr. Walter E. Miller               |
| Fresno County.....       | Dr. James E. Pendergrass, Clovis   |
| Clovis.....              | Dr. M. S. McMurtry                 |
| Coalinga.....            | Mr. W. T. Hayes                    |
| Firebaugh.....           | Mr. Frank Borrecco                 |
| Fowler.....              | Dr. H. W. Nielsen                  |
| Kingsburg.....           | Dr. Ewald A. Larson                |
| Parlier.....             | Dr. James E. Pendergrass           |
| Reedley.....             | Dr. R. E. Allen                    |
| Sanger.....              | Dr. Benjamin H. Viau               |
| San Joaquin.....         | Appointment not made               |
| Selma.....               | Dr. R. W. Binkley                  |
| Fresno.....              | Dr. C. Mathewson                   |
| Glenn County.....        | Dr. S. Iglick, Orland              |
| Orland.....              | Dr. S. Iglick                      |
| Willows.....             | Dr. Etta S. Lund                   |
| Humboldt County.....     | Dr. Lawrence A. Wing, Eureka       |
| Arcata.....              | Dr. B. Cooper                      |
| Blue Lake.....           | Dr. B. Cooper                      |
| Eureka.....              | Dr. W. J. Quinn                    |
| Ferndale.....            | Dr. O. B. Barron                   |
| Fortuna.....             | Dr. H. W. Comfort                  |
| Imperial County.....     | Dr. Warren Fox, El Centro          |
| Brawley.....             | Dr. J. L. Parker                   |
| Calxico.....             | Dr. W. T. Talbott                  |
| Calipatria.....          | Dr. H. J. Havalick                 |
| El Centro.....           | Under County Supervision           |
| Holtville.....           | Dr. John D. Keye                   |
| Imperial.....            | Dr. H. V. Gray                     |
| Inyo County.....         | Dr. Harvey W. Crook, Bishop        |
| Bishop.....              | Mr. W. L. Ray                      |
| Kern County.....         | Dr. Joe Smith, Bakersfield         |
| Bakersfield.....         | Dr. P. J. Cuneo                    |
| Delano.....              | Mr. A. Ackerman                    |
| McKittrick.....          | Town Disincorporated               |
| Maricopa.....            | Dr. K. D. Cook                     |
| Taft.....                | Dr. Oran Newton                    |
| Tehachapi.....           | Dr. R. G. Doupe                    |
| Kings County.....        | Dr. C. G. Newbecker, Hanford       |
| Corcoran.....            | Dr. J. H. Van Vorhis               |
| Hanford.....             | Mr. S. M. Brown                    |
| Lemoore.....             | Dr. W. P. Byron                    |

|                         |                                   |
|-------------------------|-----------------------------------|
| Lake County.....        | Dr. W. E. Upton, Lakeport         |
| Lakeport.....           | Mr. N. A. Wilcox                  |
| Lassen County.....      | Dr. Dan Coll, Susanville          |
| Susanville.....         | Dr. George Scott Martin           |
| Los Angeles County..... | Dr. J. L. Pomeroy, Los Angeles    |
| Alhambra.....           | Under County Supervision          |
| Arcadia.....            | Under County Supervision          |
| Avalon.....             | Dr. H. J. Strathearn              |
| Azusa.....              | Under County Supervision          |
| Bell.....               | Under County Supervision          |
| Beverly Hills.....      | Dr. Charles F. Nelson             |
| Burbank.....            | Dr. T. H. Ransom                  |
| Claremont.....          | Under County Supervision          |
| Compton City.....       | Under County Supervision          |
| Covina.....             | Under County Supervision          |
| Culver City.....        | Dr. H. E. Anderson                |
| Eagle Rock.....         | Under Los Angeles City            |
| El Monte.....           | Under County Supervision          |
| El Segundo.....         | Under County Supervision          |
| Glendale.....           | Under County Supervision          |
| Glendora.....           | Under County Supervision          |
| Hawthorne.....          | Under County Supervision          |
| Hermosa Beach.....      | Under County Supervision          |
| Huntington Park.....    | Under County Supervision          |
| Hyde Park.....          | Under Los Angeles City            |
| Inglewood.....          | Under County Supervision          |
| La Verne.....           | Under County Supervision          |
| Long Beach.....         | Dr. G. E. McDonald                |
| Los Angeles.....        | Dr. George Parrish                |
| Lynwood City.....       | Under County Supervision          |
| Manhattan Beach.....    | Under County Supervision          |
| Maywood.....            | Under County Supervision          |
| Monrovia.....           | Under County Supervision          |
| Montebello.....         | Under County Supervision          |
| Monterey Park.....      | Under County Supervision          |
| Pasadena.....           | Dr. J. D. Dunshee                 |
| Pomona.....             | Under County Supervision          |
| Redondo Beach.....      | Under County Supervision          |
| San Fernando.....       | Under County Supervision          |
| San Gabriel.....        | Under County Supervision          |
| San Marino.....         | Dr. Lemoyne Wills                 |
| Santa Monica.....       | Under County Supervision          |
| Sierra Madre.....       | Under County Supervision          |
| Signal Hill.....        | Dr. R. J. Striegel                |
| South Gate.....         | Under County Supervision          |
| South Pasadena.....     | Dr. E. J. Johnston                |
| Torrance.....           | Under County Supervision          |
| Tujunga.....            | Under County Supervision          |
| Venice.....             | Under Los Angeles City            |
| Vernon.....             | Dr. H. F. Becker                  |
| Watts.....              | Under Los Angeles City            |
| West Covina.....        | Under County Supervision          |
| Whittier.....           | Under County Supervision          |
| Madera County.....      | Dr. Lee A. Stone, Madera          |
| Chowchilla.....         | Dr. Howard G. Martin              |
| Madera.....             | Under County Supervision          |
| Marin County.....       | Dr. J. H. Kuser, San Rafael       |
| Belvedere.....          | Dr. C. W. Clark                   |
| Corte Madera.....       | Dr. L. L. Robinson                |
| Larkspur.....           | Dr. Louis L. Robinson             |
| Mill Valley.....        | Mr. Will Falley                   |
| Ross.....               | Dr. George H. Willcutt            |
| San Anselmo.....        | Dr. M. S. Edgar                   |
| San Rafael.....         | Dr. H. M. Beck                    |
| Sausalito.....          | Dr. Charna G. Perry               |
| Mariposa County.....    | Dr. A. M. Gregory, Mariposa       |
| Yosemite.....           | Dr. Hartley G. Dewey              |
| Mendocino County.....   | Dr. H. O. McClelland, Ukiah       |
| Fort Bragg.....         | Dr. Royal Scudder                 |
| Point Arena.....        | Mr. M. S. Scott                   |
| Potter Valley.....      | Under County Supervision          |
| Ukiah.....              | Dr. J. H. Hansen                  |
| Willits.....            | Dr. Raymond Babcock               |
| Merced County.....      | Dr. W. C. Cotton, Atwater         |
| Gustine.....            | Dr. A. W. Gustafson               |
| Livingston.....         | Mr. F. M. Ecclefield              |
| Los Banos.....          | Dr. L. R. Hillyer                 |
| Merced.....             | Dr. A. S. Parker                  |
| Modoc County.....       | Dr. W. E. Coppedge, Alturas       |
| Adin.....               | Dr. L. C. Smith                   |
| Alturas.....            | Dr. A. Gibson                     |
| Mono County.....        | Dr. Gilbert A. Kelley, Bridgeport |
| Monterey County.....    | Dr. R. Macleay Fortier, Salinas   |
| Carmel.....             | Under County Supervision          |
| King City.....          | Under County Supervision          |
| Monterey.....           | Under County Supervision          |
| Pacific Grove.....      | Under County Supervision          |
| Salinas.....            | Miss Marie Fidel                  |
| Soledad.....            | Under County Supervision          |
| Napa County.....        | Dr. Robert S. Northrop, Napa      |
| Calistoga.....          | Mr. J. G. Finch                   |
| Napa.....               | Mr. C. C. Hackett                 |
| St. Helena.....         | Mr. C. C. Johnson                 |
| Nevada County.....      | Dr. Carl P. Jones, Grass Valley   |
| Grass Valley.....       | Dr. Carl P. Jones                 |
| Nevada City.....        | Mr. George H. Calanan             |
| Orange County.....      | Dr. K. H. Sutherland, Santa Ana   |
| Anaheim.....            | Under County Supervision          |
| Brea.....               | Under County Supervision          |
| Fullerton.....          | Under County Supervision          |
| Garden Grove.....       | Under County Supervision          |
| Huntington Beach.....   | Under County Supervision          |
| Laguna Beach.....       | Under County Supervision          |
| La Habra.....           | Under County Supervision          |



|                                            |                                        |
|--------------------------------------------|----------------------------------------|
| Newport Beach.....                         | Dr. Gordon M. Grundy                   |
| Orange.....                                | Under County Supervision               |
| Placentia.....                             | Under County Supervision               |
| San Clemente.....                          | Under County Supervision               |
| Santa Ana.....                             | Under County Supervision               |
| Seal Beach.....                            | Under County Supervision               |
| Tustin.....                                | Under County Supervision               |
| Placer County.....                         | Dr. Theodore Snypp, Auburn             |
| Auburn.....                                | Dr. Theodore Snypp                     |
| Colfax.....                                | Dr. Charles J. Durand                  |
| Lincoln.....                               | Mr. F. R. Elder                        |
| Rocklin.....                               | Under County Supervision               |
| Roseville.....                             | Dr. W. D. Hoffman                      |
| Plumas County.....                         | Dr. B. J. Lasswell, Quincy             |
| Riverside County.....                      | Dr. W. B. Wells, Riverside             |
| Banning.....                               | Mr. J. R. Page                         |
| Beaumont.....                              | Mr. S. L. Wells                        |
| Blythe.....                                | Dr. W. H. Chapman                      |
| Corona.....                                | Dr. W. S. Davis                        |
| Elsinore.....                              | Dr. S. J. Brimhall                     |
| Hemet.....                                 | Mr. A. J. Berg                         |
| Perris.....                                | Dr. Chester R. Brown                   |
| Riverside.....                             | Dr. W. B. Wells                        |
| San Jacinto.....                           | Appointment not made                   |
| Sacramento County.....                     | Dr. Hugh Beattie, Elk Grove            |
| Isleton.....                               | Dr. J. H. Leimbach                     |
| North Sacramento.....                      | Dr. W. E. Weddle                       |
| Sacramento.....                            | Dr. Herbert F. True                    |
| San Benito County.....                     | Dr. L. C. Hull, Hollister              |
| Hollister.....                             | Dr. Fred A. Earle                      |
| San Juan Bautista.....                     | Mr. E. Zanetta                         |
| San Bernardino County.....                 | Dr. S. B. Richards, San Bernardino     |
| Barstow.....                               | Under County Supervision               |
| Chino.....                                 | Dr. W. C. Miller                       |
| Colton.....                                | Dr. J. A. Champion                     |
| Needles.....                               | Dr. W. G. Morton                       |
| Ontario.....                               | Dr. C. L. Emmons                       |
| Redlands.....                              | Dr. Harold G. Gentry                   |
| Rialto.....                                | Dr. L. P. Barbour                      |
| San Bernardino.....                        | Dr. W. W. Fenton                       |
| Upland.....                                | Dr. John B. Craig                      |
| San Diego County.....                      | Dr. Alex M. Lesem, San Diego           |
| Chula Vista.....                           | Dr. F. E. Ashcroft                     |
| Coronado.....                              | Dr. Joseph I. Porter                   |
| East San Diego.....                        | Under County Supervision               |
| El Cajon.....                              | Mr. Charles F. Richardson              |
| Escondido.....                             | Dr. C. A. S. Kemper                    |
| La Mesa.....                               | Under County Supervision               |
| National City.....                         | Under County Supervision               |
| Oceanside.....                             | Under County Supervision               |
| San Diego.....                             | Dr. Alex M. Lesem                      |
| San Francisco County.....                  | Vacancy                                |
| Dr. Jacques P. Gray, Acting Health Officer |                                        |
| San Joaquin County.....                    | Dr. John J. Sippy, Stockton            |
| Lodi.....                                  | Under County Supervision               |
| Manteca.....                               | Under County Supervision               |
| Stockton.....                              | Under County Supervision               |
| Traey.....                                 | Under County Supervision               |
| San Luis Obispo County.....                | Dr. Allen F. Gillihan, San Luis Obispo |
| Arroyo Grande.....                         | Under County Supervision               |
| Paso Robles.....                           | Under County Supervision               |
| San Luis Obispo.....                       | Under County Supervision               |
| San Mateo County.....                      | Dr. F. Holmes Smith, San Bruno         |
| Atherton.....                              | Mr. Grover C. Mull                     |
| Belmont.....                               | Mr. S. M. St. John                     |
| Burlingame.....                            | Dr. Matthew F. Desmond                 |
| Colma.....                                 | Under County Supervision               |
| Daly City.....                             | Dr. Ferdinand Callen                   |
| Hillsborough.....                          | Mr. C. M. Hirschey                     |
| Menlo Park.....                            | Dr. R. J. Gerlough                     |
| Redwood City.....                          | Mr. Con Drathman                       |
| San Bruno.....                             | Dr. F. H. Smith                        |
| San Carlos.....                            | Mr. O. W. Stewart                      |
| San Mateo.....                             | Dr. W. C. McLean                       |
| South San Francisco.....                   | Dr. Thomas C. Doak                     |
| Santa Barbara County.....                  | Dr. R. C. Main, Santa Barbara          |
| Carpinteria.....                           | Unincorporated                         |
| Guadalupe.....                             | Unincorporated                         |
| Lompoc.....                                | Under County Supervision               |
| Orcutt.....                                | Disincorporated                        |
| Santa Barbara.....                         | Dr. W. H. Eaton                        |
| Santa Maria.....                           | Under County Supervision               |
| Santa Clara County.....                    | Dr. C. M. Burchfiel, San Jose          |
| Alviso.....                                | Dr. J. I. Beattie                      |
| Gilroy.....                                | Lawrence F. Vaughn, D. V. M.           |
| Los Gatos.....                             | Under County Supervision               |
| Mayfield.....                              | Under Palo Alto City                   |
| Morgan Hill.....                           | Dr. R. L. Newbold                      |
| Mountain View.....                         | Under County Supervision               |
| Palo Alto.....                             | Mr. Louis Olsen                        |
| San Jose.....                              | Dr. H. C. Brown                        |
| Santa Clara.....                           | Under County Supervision               |
| Sunnyvale.....                             | Under County Supervision               |
| Willow Glen.....                           | Dr. R. A. Whiffen                      |
| Santa Cruz County.....                     | Dr. Samuel B. Randall, Santa Cruz      |
| Santa Cruz.....                            | Dr. J. T. Harrington                   |
| Watsonville.....                           | Dr. George P. Tolman                   |
| Shasta County.....                         | Dr. B. F. Saylor, Redding              |
| Kennett.....                               | Appointment not made                   |
| Redding.....                               | Mr. Leslie Engram                      |
| Sierra County.....                         | Dr. Carl C. Sutton, Downieville        |
| Downieville.....                           | Under County Supervision               |
| Loyalton.....                              | Mr. M. C. Johnson                      |
| Siskiyou County.....                       | Dr. Louis J. Lista, Mount Shasta       |
| Dorris.....                                | Dr. Paul P. Baron                      |

|                        |                                  |
|------------------------|----------------------------------|
| Dunsmuir.....          | Mr. T. B. Wright                 |
| Etna.....              | Dr. E. W. Bathurst               |
| Fort Jones.....        | Mr. John Schary                  |
| Montague.....          | Mr. Frank French                 |
| Mount Shasta.....      | Dr. Paul Wright                  |
| Yreka.....             | Dr. Charles Pius                 |
| Solano County.....     | Dr. W. C. Jenney, Vacaville      |
| Benicia.....           | Dr. P. B. Fry                    |
| Dixon.....             | Mr. H. C. Grove                  |
| Fairfield.....         | Dr. H. V. Clymer                 |
| Rio Vista.....         | Mr. George A. Brown              |
| Suisun.....            | Dr. A. P. Finan                  |
| Vacaville.....         | Mr. W. F. Hughes                 |
| Vallejo.....           | Dr. E. A. Peterson               |
| Sonoma County.....     | Dr. P. A. Meneray, Santa Rosa    |
| Cloverdale.....        | Dr. Ira A. Wheeler               |
| Healdsburg.....        | Dr. J. Walter Seawell            |
| Petaluma.....          | Dr. G. R. Hubbell                |
| Santa Rosa.....        | Mr. E. J. Helgren                |
| Sebastopol.....        | Dr. Chester Marsh                |
| Sonoma.....            | Mr. J. F. Tate                   |
| Stanislaus County..... | Dr. O. I. Bemis, Modesto         |
| Ceres.....             | Dr. R. Stewart Hiatt             |
| Modesto.....           | Dr. Harold P. Muller             |
| Newman.....            | Dr. H. V. Armistead              |
| Oakdale.....           | Mr. C. E. Wood                   |
| Patterson.....         | Mr. C. W. Kirk                   |
| Riverbank.....         | Dr. O. I. Bemis                  |
| Turlock.....           | Dr. C. E. Pearson                |
| Sutter County.....     | Dr. N. E. Richardson, Yuba City  |
| Yuba City.....         | Dr. J. H. Barr                   |
| Tehama County.....     | Dr. E. E. Thompson, Red Bluff    |
| Corning.....           | Dr. Caroline Howes               |
| Red Bluff.....         | Dr. F. J. Bailey                 |
| Tehama.....            | Dr. J. H. Belyea                 |
| Trinity County.....    | Dr. David B. Fields, Weaverville |
| Tulare County.....     | Dr. A. W. Preston, Visalia       |
| Dinuba.....            | Dr. Edgar R. Brigham             |
| Exeter.....            | Dr. Donald C. Fowler             |
| Lindsay.....           | Dr. Annie L. Bond                |
| Porterville.....       | Dr. J. W. Nicholson              |
| Tulare.....            | Dr. E. R. Zumwalt                |
| Visalia.....           | Dr. A. W. Preston                |
| Tuolumne County.....   | Dr. William L. Hood, Sonora      |
| Sonora.....            | Dr. William L. Hood              |
| Ventura County.....    | Dr. J. A. King, Ojai             |
| Fillmore.....          | Under County Supervision         |
| Ojai.....              | Dr. J. A. King                   |
| Oxnard.....            | Under County Supervision         |
| Santa Paula.....       | Dr. John Crawford                |
| Ventura.....           | Dr. J. A. DeSerpa                |
| Yolo County.....       | Dr. Fred R. Fairchild, Woodland  |
| Davis.....             | Under County Supervision         |
| Winters.....           | Under County Supervision         |
| Woodland.....          | Dr. Fred R. Fairchild            |
| Yuba County.....       | Dr. J. H. Barr, Marysville       |
| Marysville.....        | Dr. R. Hanagan                   |
| Wheatland.....         | Mr. H. Reithardt                 |

*Health Officer Has Right to Enter Schools.*—Honorable U. S. Webb, Attorney General of California, has issued an important opinion relative to the right of the health officer to enter school property in order to institute measures for the control of communicable diseases. The opinion confirms a similar opinion issued by the District Attorney of San Diego County, which involves the interpretation of Section 1120 of the School Code, which reads as follows:

A parent or guardian having control or charge of any child enrolled in the public schools may file annually with the principal of the school in which he is enrolled a statement in writing, signed by such parent or guardian, stating that he will not consent to the physical examination of his child provided for in this chapter, and thereupon such child shall be exempt from any physical examination, but whenever there is a good reason to believe that such child is suffering from a recognized contagious or infectious disease, such child shall be sent home and shall not be permitted to return until the school authorities are satisfied that such contagious or infectious disease does not exist.

The Attorney General states that "obviously if in fact through a health officer or from any other source the health authorities had a reasonable ground for believing that a child was suffering from diphtheria, it would be not only the right but the duty of the school trustees to exercise the authority as specified in the code to protect the other children of the school. No one parent, or guardian, or child has any right in the premises, the exercise of which would endanger the health and the lives of the other children of the school. The general right and privilege of all the children and of all the parents and guardians is paramount and controls over any asserted individual privilege in the premises.—*Weekly Bulletin*, California State Department of Health.



## CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.  
Secretary-Treasurer of the Board

### News Items, September 1931

"Concessions have been granted by the Mexican Government to J. R. Brinkley, Milford, Kansas, rejuvenation specialist, for the establishment of a radio station at Villa Acuna, Coahuila, Mexico, across the border from Del Rio, Texas. Brinkley, who has operated a station at Milford, was recently denied his license by the Federal Radio Commission on the basis the station was not being operated in the public interest" (United Press dispatch, San Francisco *News*, August 3, 1931). (Previous entries, July and October, 1930.)

Attention of the Investigation Department has recently been called to the incorporation of the "Antithesians," which, according to the articles of incorporation, deal with Celosophy, defined as "drugless, save and except for the simple remedies found in every family medicine chest . . . (and) . . . does not include surgery other than the use of the fluoroscope and roentgen ray for observation purposes and colonic irrigations for cleansing and relief." According to the literature, membership costs \$10 for men and \$5 for women.

Recent press dispatches relate the appointment of George Sabichi, M. D., well known physician of Bakersfield, superintendent of the Whittier School for Boys.

Press dispatches relate that on July 14, 1931, Dr. Mildred E. Thoren, who has been acting as superintendent of Weimar Joint Sanitarium since the death of Doctor Whittington, was by action of the supervisors appointed medical director and general superintendent.

According to reports, Lau Yit Cho, alias Lau Wing, alias Kang Hing, Chinese herbalist, 502 Grant Avenue, San Francisco, on July 24, 1931, in the United States Federal Court, San Francisco, Judge Cosgrave presiding (Docket 22687), pleaded guilty to a felony in using the mails to defraud in violation of a postal fraud order, and was sentenced to five years' probation, with the understanding that he was to comply with the probation officer's orders and was not to use the mails in violation of the law and if he did so he would be sent to the penitentiary without any further trial or hearing. "Following the recent issuance of a fraud order against this firm at 502 Grant Avenue, San Francisco, they changed their name from Lau Yit Cho to Kang Hing and proceeded to mail out their same old literature of Lau Yit Cho that they had always used, and, regardless of the complaint, they sent the same diet slip and other instructions that they had used under their old name. . . ." (Previous entries, November 1930; July 1931.)

"Extreme leniency was shown Dr. S. A. Barber, sixty-one, Porterville doctor, here today, when he was granted two years' probation by Superior Judge Frank Lamberson, after pleading guilty to a charge of performing an illegal operation upon a nineteen-year-old Mendota girl last April. Terms of the probation include a suspended prison sentence and the proviso that the doctor leave Porterville fifteen days after his release from the county Jail, where he is serving an eight months' sentence for selling morphin to Mrs. H. A. Todd of Visalia . . ." (Fresno *Rec.* August 3, 1931). (Previous entry, June and July 1931.)

"Revocation of the license of Dr. Wesley M. Barrett, osteopathic physician, was announced yesterday by the State Board of Osteopathic Examiners, following a hearing at the Biltmore Hotel. Doctor Barrett was charged with unprofessional conduct" (Los Angeles *Illustrated Daily News*, July 8, 1931). (Previous entry, May 1927.)

The records show that on July 3, 1931, the Appellate Division of the Superior Court, San Francisco, affirmed the conviction of Arthur Jay Green, who, according to reports, has been conducting lectures, freely using the prefix "Dr." in his advertising although he is said to have no medical credentials entitling him so to do. (Previous entry, April 1931.)

"While employed as a painter at the General Hospital, Francis Hanan, thirty-two, represented to patients that he was a physician and accepted money to treat them, he admitted yesterday in Municipal Judge Harold Landreth's court. Hanan pleaded guilty to violating the State Medical Practice Act by practicing without a license. Judge Landreth imposed a \$100 fine and suspended the penalty, placing Hanan on probation for six months" (Los Angeles *Examiner*, July 29, 1931).

Dr. William I. Kinsley, one-time candidate for Lieutenant Governor of California, today was sentenced to three years' imprisonment for violation of the State Narcotic Act. Doctor Kinsley was convicted on a charge of giving morphin tablets to a woman addict" (San Francisco *Examiner*, August 8, 1931).

Orin Joslin was reported found guilty by a Los Angeles jury August 3 on a charge of violation of the Medical Practice Act and the following day was sentenced to pay a fine of \$250 or serve twenty-five days in the city jail, sentence being suspended on condition that he does not violate the law or use the suffix M. D. "Defendant gave notice of appeal and was released on \$200 bail."

A complete history of Tsuneyoshi Lawrence Koba, mentioned in "News Items" of February 1930, was printed in the *Journal of the American Medical Association*, August 1, 1931, page 339, and is an interesting narrative of the use of fraudulent diplomas, etc.

Adolphe Linke is reported to have pleaded guilty in Los Angeles, August 6, to a charge of violation of the Medical Practice Act and was sentenced to pay a fine of \$100 or serve ten days in jail, both fine and jail sentence being suspended on condition of no further violation.

J. A. Maurer is reported to have pleaded guilty in the Justice Court of Los Angeles on July 23 and was sentenced to pay a fine of \$100, \$75 of which was suspended for two years on condition of no further violation of the Medical Practice Act, and \$25 paid.

On July 14 Herbert N. Tatum, licensed chiropractor, is reported to have pleaded guilty in the Municipal Court of Los Angeles to a charge of violation of the Medical Practice Act, and was sentenced to pay a fine of \$200 or serve twenty days in the city jail.

N. D. Willson, on July 15, 1931, was reported to have pleaded guilty in the Justice Court of Pasadena and sentenced to pay a fine of \$100 or serve sixty days in the county jail on a charge of violation of the Medical Practice Act, sentence being suspended for two years on condition of no further violation.





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## TRUTH ABOUT MEDICINES

(Continued from Page 29)

**Lactogen** (Nestle's Milk Products, Inc., New York). A spray-dried modified cow's milk containing added milk-fat and lactose. The prescribed dilution approximates human milk in percentages of milk-fat, protein, lactose and total minerals and in dispersion of the fat in fine globules. Lactogen is intended for infant feeding.

**Uffelmann's Golden Krust Bread** (The Uffelmann Baking Company, Cincinnati).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.—*Journal of the American Medical Association*, July 4, 1931, p. 31.

**Plezol Bread** (The Baker Bread Company, Zanesville, Ohio).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**Hecht's Fine Twins Bread** (Hecht's Bakery, Bristol, Tennessee).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**Carnation Flaked Wheat** (Carnation Company, Oconomowoc, Wisconsin, and Seattle, Washington). A flaked steam-cooked, white wheat with the coarser bran portion removed. This product is claimed to be a wholesome "hot breakfast cereal" (for home cooking), containing all portions of the wheat berry excepting the outer coarser portion of the bran.—*Journal of the American Medical Association*, July 18, 1931, p. 179.

**Dromedary Finest Florida Grapefruit** (The Hills Brothers Company, Florida).—The canned segments of fully ripened Florida grapefruit packed in sucrose syrup. The grapefruit segments approximate 92.5 per cent and the sucrose syrup 7.5 per cent of the can

(Continued on Page 40)



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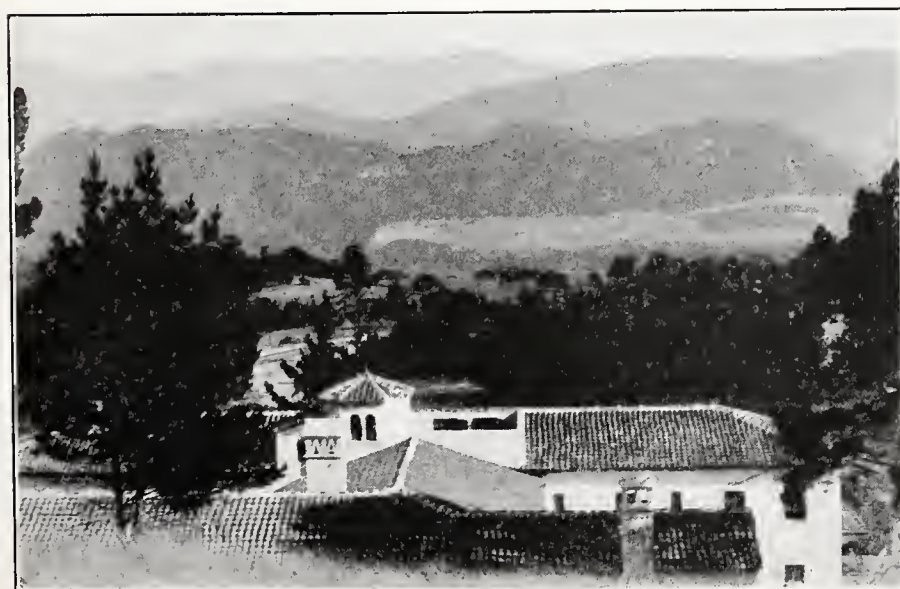
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Excerpts from American Medical Association Essentials for an Approved Clinical Laboratory

## DEFINITION

*"\* \* \* A clinical pathologic laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body."*

*"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."*

*"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."*

## THE DIRECTOR

*"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."*

*"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."*

*"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."*

*"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."*

## RECORDS

*"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."*

## PUBLICITY

*"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."*

## FEEES

*"\* \* \* There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. \* \* \*"*

The following laboratories in California are among those approved by the Council on Medical Education and Hospitals of the American Medical Association:

Clinical Laboratory of Drs. W. V. Brem, A. H. Zeiler and R. W. Hammack,  
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Dr. Marion H. Lippman's Laboratory, Butler Building, 135 Stockton Street,  
San Francisco.

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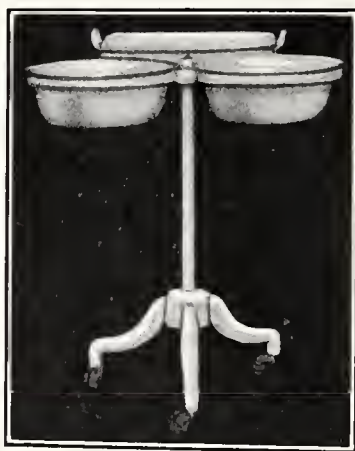
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## TRUTH ABOUT MEDICINES

(Continued from Page 34)

contents. It is claimed that this product is as delightful as fresh fruit in flavor and texture and that the nutritional values of the grapefruit are practically unimpaired by the canning, the vitamin C content being only slightly decreased.

**SMACO (203) Concentrated Liquid Whole Milk (Sterilized)** (S. M. A. Corporation, Cleveland).—A canned evaporated milk. The product is produced exclusively for infant feeding. It is claimed to keep indefinitely in the unopened can.

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(Continued on Page 43)



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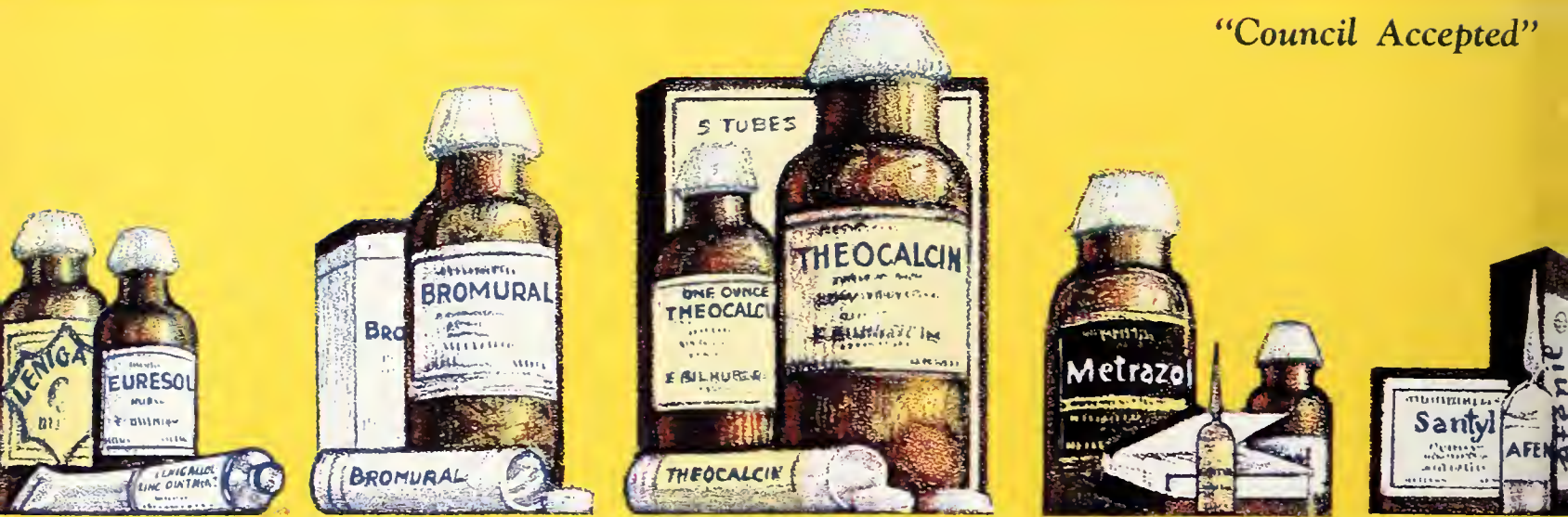


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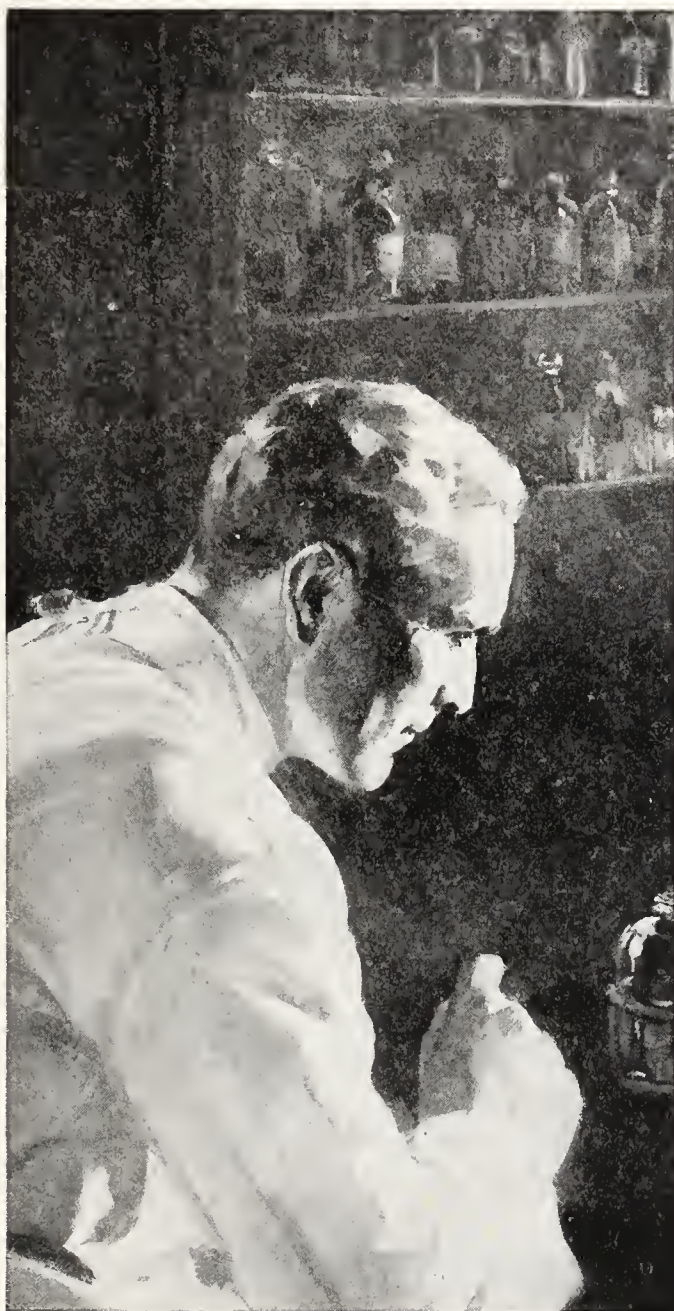
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AGENTS FOR BARD-PARKER COMPANY

### TRUTH ABOUT MEDICINES

(Continued from Page 40)

**Swan's Whole Milk Bread (Swan Brothers, Inc., Knoxville, Tennessee).**—A white bread made by the sponge dough method. It is claimed to be a milk bread of good quality.—*Journal of the American Medical Association*, July 25, 1931, p. 248.

#### PROPAGANDA FOR REFORM

**The Federal Food and Drugs Act—1906-1931.**—A quarter of a century ago, on June 30, 1906, President Theodore Roosevelt signed the Food and Drugs Act specifically designated "for preventing the manufacture, sale, or transportation of adulterated or misbranded or deleterious foods, drugs, medicines and liquors and for regulating traffic therein, and for other purposes." This measure has had a wholesome

effect that can scarcely be realized by those not familiar with the conditions of the past. The American Medical Association, through the Council on Pharmacy and Chemistry, has been a pioneer in its efforts to protect the medical profession and the public against fraud, undesirable secrecy and objectionable advertising in connection with proprietary medicinal articles. Its efforts have been greatly facilitated by the passage and enforcement of the Food and Drugs Act. The coming of age of the Food and Drugs Act should not be allowed to pass without some reference to the dominant figure in the crusade for pure foods and drugs, the late Dr. Harvey Washington Wiley. He was chief chemist of the United States Department of Agriculture during the period of the fight for the federal act, and until 1912, "a very mountain among men, a lion among fighters." The

(Continued on Page 47)



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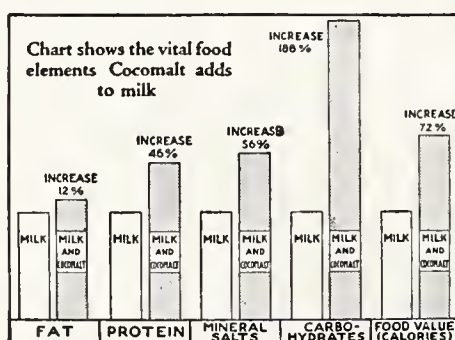
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## TRUTH ABOUT MEDICINES

(Continued from Page 43)

movement that he helped to start deserves unqualified commendation. The forces on the fighting line deserve congratulation. There is still much to be accomplished. Vigilance must never be relaxed.—*Journal of the American Medical Association*, July 4, 1931, p. 32.

**Theelin and Theelol.**—The announcement three years ago of the separation of a potent ovarian hormone from the follicular fluid by Allen and Doisy marked a distinct step in the direction of progress. The product had an estrus-promoting activity that could readily be assayed. Other investigators also have been engaged in the study of ovarian hormones, and medical journals carry accounts of a considerable number of products, each designated by some dis-

tinctive trade name. A new era was ushered in when Doisy announced, at the thirteenth International Physiological Congress in 1929, the isolation of a hormone in crystalline form. The Council on Pharmacy and Chemistry of the American Medical Association adopted the name "theelin," selected by Doisy, as the nonproprietary designation to be used in New and Nonofficial Remedies for the ovarian hormone made by the process of Doisy. Last year Doisy and his co-workers recorded the discovery of a second estrogenic substance in the urine of pregnant women. It is a triatomic alcohol for which the name theelol has been proposed. Theelin appears to be approximately twice as active as theelol in adult spayed rats, whereas theelol is six or seven times as active as theelin in immature female rats. It is too early to speculate on the possible uses of these two substances.—*Journal of the American Medical Association*, July 4, 1931, p. 33.

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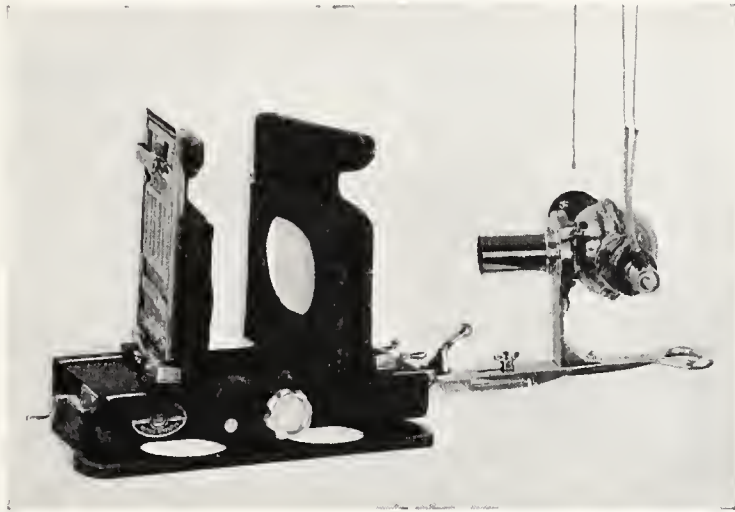


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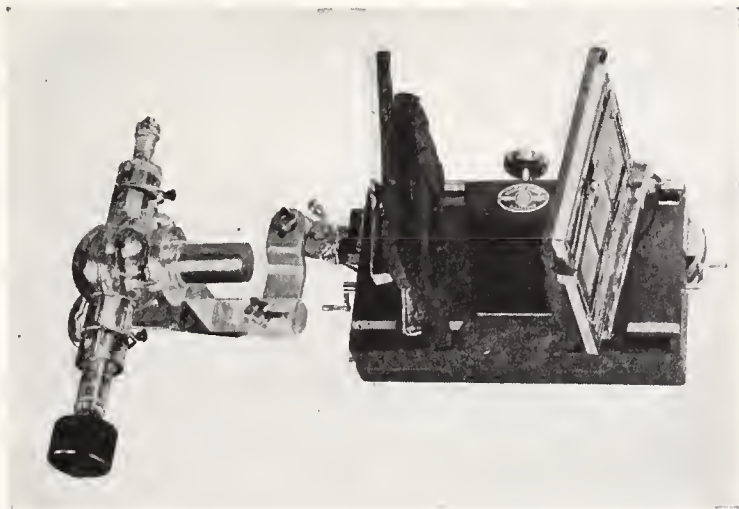
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| Auditing Committee                                                                                                                                                                                                                              | Jesse W. Barnes, Stockton.....1933                                                     |
| T. Henshaw Kelly (Chairman).....San Francisco                                                                                                                                                                                                   | Le Roy Brooks (Chairman), San Francisco.....1934                                       |
| Joseph Catton.....San Francisco                                                                                                                                                                                                                 | The Secretary.....Ex-officio                                                           |
| Karl L. Schaupp.....San Francisco                                                                                                                                                                                                               | Committee on History and Obituaries                                                    |
| Committees on Associated Societies and Technical Groups                                                                                                                                                                                         | Charles D. Ball (Chairman), Santa Ana.....1932                                         |
| Harold A. Thompson, San Diego.....1932                                                                                                                                                                                                          | Emmet Rixford, San Francisco.....1933                                                  |
| William Duffield, Los Angeles.....1933                                                                                                                                                                                                          | George D. Lyman, San Francisco.....1934                                                |
| R. Manning Clarke (Chairman), Los Angeles.....1934                                                                                                                                                                                              | The Secretary.....Ex-officio                                                           |
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| Committee on Health and Public Instruction                                                                                                                                                                                                      | Percy T. Magan (Chairman), Los Angeles.....1934                                        |
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| Gayle G. Moseley, Redlands (deceased).....1933                                                                                                                                                                                                  | William Duffield, Los Angeles.....1934                                                 |
| Karl L. Schaupp, San Francisco.....1934                                                                                                                                                                                                         | The President-elect.....Ex-officio                                                     |
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| Fred R. DeLappe, Modesto.....1933                                                                                                                                                                                                               |                                                                                        |
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\* Each year the California Medical Association offers two prizes of One Hundred and Fifty Dollars each, with certificates of award, for the two best papers on clinical and research subjects. Full information concerning the conditions laid down in these competitions may be had by addressing the Association Secretary.

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 Director, Giles S. Porter, Los Angeles.

**Board of Medical Examiners of the State of California**  
 San Francisco, 623 State Building  
 Los Angeles, 812 Associated Realty Building  
 510 West Sixth Street

Sacramento, 420 State Office Building  
 President, P. T. Phillips, Santa Cruz.  
 Secretary, C. B. Pinkham, 623 State Building, San Francisco.

**Southern California Medical Association**  
 President, Fred B. Clarke, 1006 Pacific Southwest Building, Long Beach.  
 Secretary, Carl R. Howson, 711 Merritt Bldg., 307 W. Eighth Street, Los Angeles.

**California Northern District Medical Society**  
 President, George H. Sanderson, 809 Medico-Dental Building, Stockton.

Secretary, D. Schuyler Pulford, Woodland Clinic, Woodland.

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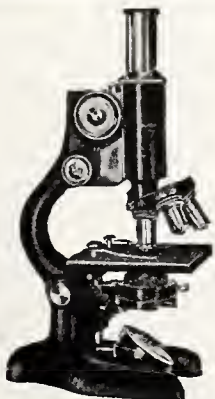
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**A Discourtesy in Consultation Practice.**—We have been asked to take note of a too frequently occurring instance of thoughtlessness on the part of consultants, consisting in referring a patient to another specialist without considering the wishes of the general physician or colleague who first sent the patient. It is right and courteous that the family physician who refers the patient should know what disposition is made of the case. He may have had in mind that the disease would need the attention of still another specialist, may even have spoken to such a one; at least he has his rightful preference as to all consultants. But if, without advice asked, the patient is sent off to the consultant's friend unknown complications and even hard feelings may arise. In some cases the reference back to the original physician is difficult or even impossible, as, *e. g.*, the patient who comes from a distance in emergencies, etc. At least a frank notice of the facts in the case can be sent at once, and further instructions asked for. Such courtesy and considerations of the rights of the referer is not only good ethics and manners, but is quite as good policy.—*Pennsylvania Medical Journal*, October 1930.

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## BOOK REVIEWS

## List of Books Received

## BOOKS RECEIVED

**A Survey of the Medical Facilities of the City of Philadelphia: 1929.** Being in part a digest of the "Philadelphia Hospital and Health Survey, 1929." By Nathan Sinai, D. P. H., and Alden B. Mills of the Research Staff of the Committee on the Costs of Medical Care. Paper. Pp. 298. Price, \$1.50. Chicago: The University of Chicago Press, 1931.

**The "Municipal Doctor" System in Rural Saskatchewan.** By C. Rufus Rorem, Ph. D., C. P. A. of the Research Staff of the Committee on the Costs of Medical Care. Paper. Pp. 84. Price, \$1.00. Chicago: The University of Chicago Press, 1931.

**What the Public Should Know About Childbirth.** By Walker Bourne Gossett, M. D. Cloth. Pp. 290. Price, \$2.00. Minneapolis: The Midwest Company, 1931.

**Paying Your Sickness Bills.** By Michael M. Davis, Director for Medical Service, Julius Rosenwald Fund. Cloth. Pp. 276. Price, \$2.50. Chicago: The University of Chicago Press, 1931.

**Prevention of Premature Senility.** By Victor G. Vecki, M. D., San Francisco. Composition. Pp. 127. Price, \$1.00. Boston: The Stratford Company, 1931.

**Health Through Will Power.** By James J. Walsh, M. D., Ph. D., Sc. D., Medical Director of Fordham University School of Sociology; Professor of Physiological Psychology at Cathedral College; Lecturer on Psychology, Marywood College. Cloth. Pp. 228. Price, \$2.00. Boston: The Stratford Company, 1931.

**Tables of Food Values.** By Alice V. Bradley, B. S., Supervisor and Instructor of Nutrition and Health Education, State Teachers College, Santa Barbara. Cloth. Pp. 128. Price, \$2.00. Peoria: The Manual Arts Press, 1931.

**Nutrition and Physical Fitness.** By L. Jean Bogert, Ph. D., formerly instructor in Medicine, University of Chicago, instructor in Experimental Medicine, Yale University, Research Chemist, Obstetrical Department, Henry Ford Hospital, Professor of Food Economics and Nutrition at the Kansas State Agricultural College. Cloth. Pp. 554 with 65 illustrations. Price \$3 net. Philadelphia and London: W. B. Saunders Company, 1931.

**Gonorrhea in the Male and Female.** By Percy S. Pelouze, M. D., Associate in Urology and Assistant Genito-Urinary Surgeon at the University of Pennsylvania; Fellow of the Philadelphia College of Physicians, Philadelphia. Second edition. Revised. Cloth. Pp. 440 with 92 illustrations. Price, \$5.50 net. Philadelphia and London: W. B. Saunders Company, 1931.

**The Practice of Medicine.** By A. A. Stevens, A. M., M. D., Professor of Applied Therapeutics in the University of Pennsylvania; Visiting Physician to Philadelphia General and University Hospitals; Consulting Physician to St. Agnes' Hospital, Philadelphia. Third edition, entirely reset. Cloth. Pp. 1150, illustrated. Price, \$8.00 net. Philadelphia and London: W. B. Saunders Company, 1931.

## BOOK REVIEWS

**Textbook of Human Embryology.** By Cleveland Sylvester Simkins, Ph. D. Pp. 469. Illustrated. Philadelphia: F. A. Davis Company, 1931. Price, \$4.50.

This volume is written primarily for the use of medical students. The author stresses the functional rather than the morphological development of the human embryo. Both the text and illustrations are strictly concerned with human development and the comparative embryology, which figured so prominently in the older books, has been omitted.

The author has included considerable material drawn from recent researches in embryology and the physiology of reproduction. The book admirably fills the need of a textbook incorporating this valuable information.

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(Continued on Page 14)

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### BOOK REVIEWS

(Continued from Page 11)

The book contains 263 well chosen drawings and photographs drawn from the recent literature which are helpful in elucidating the text, an extensive bibliography of 253 titles is appended, which is intended for advanced reading.

This book can be well recommended to the student and to the physician interested in the fundamental sciences who wishes to keep abreast of the more recent work in embryology.

C. C. F.

**Roentgen Interpretation, A Manual for Students and Practitioners.** By George W. Holmes and Howard E. Ruggles. Fourth ed. Pp. 339. Illustrated. Philadelphia: Lea & Febiger, 1931. Price \$5.

This book is the fourth edition of one of the outstanding works of radiology. The earlier editions met with such generalized success that a thoroughly revised and enlarged fourth edition appears in a comparatively short space of time.

The text covers the field of roentgen diagnosis briefly and comprehensively. It contains many valuable points of differential diagnosis which have been gathered from many years of practice and teaching. The reproductions are well chosen and are of excellent quality. They are taken from positive prints of the original radiographs and clearly show the pathological changes.

Intravenous pyelography, Graham's method of gall bladder visualization, and lipiodol injections all receive careful consideration. There are discussions on fractures and dislocations, bone infections, bone tumors, trophic and nutritional changes. A very useful tabulation is presented for the differential diagnosis of the more common bone lesions. The chapter on anatomical variation and development contains tables on the appearance of ossification and a table for determining bone ages, which are valuable not only to the beginner but to those of wide experience.

The chapter on diseases of the stomach is illustrated by drawings as well as radiographs which clearly illustrate the various gastric lesions and deformities.

It is not the purpose of the authors to cover the subject completely but rather to give an outline which will illustrate the typical cases. A well-chosen bibliography is found at the end of each chapter which enables the student to look up any phase of the subject in greater detail.

This fourth edition can be highly recommended as a textbook for the student, as a quick reference book to the radiologist and as a practical guide to the physician who interprets his own radiographs.

C. C. F.

**Fundamentals of Dermatology.** By Alfred Schalek. Second ed. Pp. 247. Illustrated. Philadelphia: Lea & Febiger, 1931. Price, \$3.00.

A small volume, concisely written, primarily for students and practitioners, in no sense complete—but accomplishing its objective by embodying only the salient features of each disease together with remedial agents of proven value. The author uses an alphabetical arrangement, stressing, however, the fact that a true classification should be a pathological one.

The chapter on aphorisms is well chosen and useful. A timely warning is given the beginner against the injudicious use of x-ray therapy and the use of irritating external preparations.

The discussion of syphilis, while brief, is clearly descriptive and includes the essential diagnostic points and principles of treatment, giving attention to the value of its early recognition and the individualizing of therapy.

The book is clearly written and should prove of value to those for whom it is intended.

S. C. W.

**Cancer: Its Origin, Its Development and Its Self-Perpetuation.** By Willy Meyer. Pp. 427. New York: Paul B. Hoeber, Inc., 1931. Price, \$7.50.

A series of essays setting forth the author's theories about cancer, too excursive to be adequately discussed in a brief review. His conclusion is that cancer is both a local and a systemic disease, the chief factor in the latter being alkalosis and that treatment should include attack upon this as well as local surgical or x-ray therapy; also that it may be possible to recognize systemic states favorable to the development of cancer and by correcting these, offer true cancer prophylaxis.

A. R. K.

**A Manual of the Common Contagious Diseases.** By Philip Moen Stimson. Pp. 351. Illustrated. Philadelphia, Lea & Febiger, 1931. Price \$3.75.

The above handbook is a fairly complete summary of the common contagious diseases, and will be found a convenient reference book for students and general practitioners.

H. E. T.

(Continued on Page 18)

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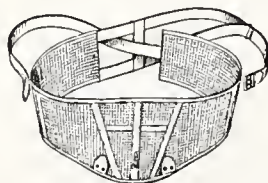


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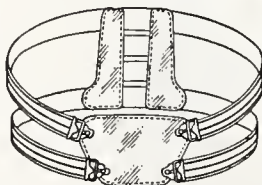
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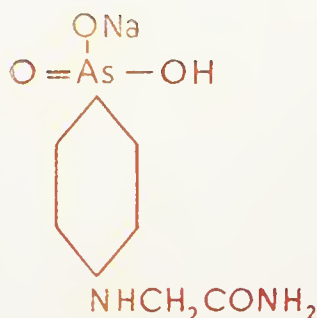
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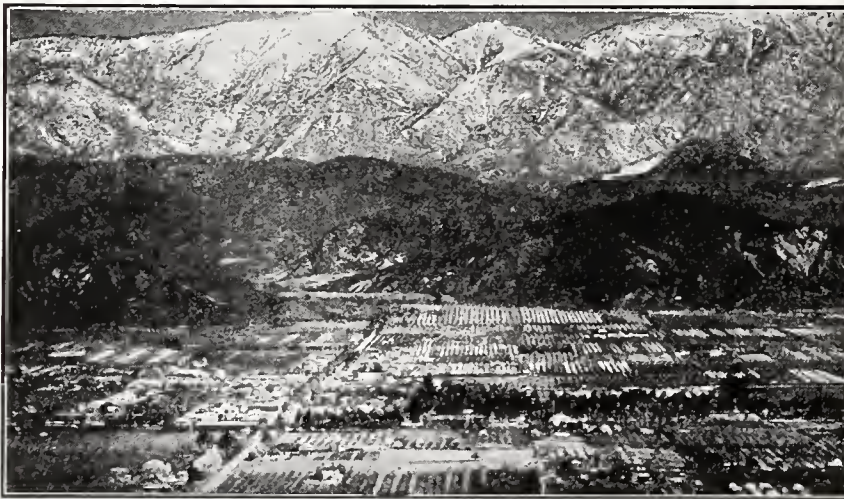
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## BOOK REVIEWS

(Continued from Page 14)

**Modern Methods of Treatment.** By Logan Clendening. Fourth edition. Pp. 819. St. Louis, C. V. Mosby Company, 1931. Price \$10.

Immediately after its appearance in 1924, Clendening's treatise on therapeutics took its place among the outstanding textbooks on medical treatment. It found particular popularity as a text among medical students.

The first section of the book consists of a résumé of pharmacology and discusses drugs, their indications and actions, biological products and the methods of administration, and lastly, the various endocrine products.

The chapter on dietetics contains the information an average physician desires. It includes sections on types of diet (soft, low purine, nonresidual, etc.); diets for special conditions, such as pernicious anemia, peptic ulcer, heart disease, gout; special recipes for invalids' foods; and infant feeding. There are tables showing the mineral contents of foods, and the composition of foods in terms of carbohydrate, protein, and fat.

(Continued on Page 20)



# The liberal use of cow's milk in the child's diet is desirable for its calcium and phosphorus content when its well-known deficiencies in iron and vitamin B (F) are made good with Mead's Cereal

THE Journal of the American Medical Association<sup>1</sup> based on recent research by Sherman and Booher<sup>2</sup>, raises the question as to whether the relatively large consumption of milk (up to a quart a day) should be routinely recommended, on account of the deficiency of milk in iron and the resultant relation to anemia. On the other hand, if the milk ration is

decreased and ordinary cereals substituted, not only is the iron deficiency far from being made good, but there remains the well-known fact that most cereals are seriously deficient in calcium and vitamin G. Fortunately, the recent development by the Pediatric Research Foundation of a new cereal, which when used with milk not only makes good its iron and vitamin B deficiencies, but also supplies what no other cereal supplies in such outstandingly abundant measure—calcium, phosphorus, copper and vitamins A, E and G. This new cereal was devised in the Research Laboratories

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Ca per oz.  
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0.0011 gms.  
Iron  
in one oz.  
Rolled Oats

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Figures show gms. iron per ounce of cow's milk, farina, rolled oats and Mead's Cereal.

0.0022 gms.  
Fe per oz.  
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0.0006 gms. Fe  
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0.0039 gms.  
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oz. **FARINA**

<sup>1</sup> Editorial, Storage of Calcium, J.A.M.A. 96:197 (1931). <sup>2</sup> Sherman, H. C. and Booher, L. E., The Calcium Content of the Body in Relation to that of the Food, Proc. Soc. Exper. Biol. & Med. 28:91 (1930).

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Refs: F. R. Fraser, J. C. Hoyle, etc., etc.

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## BOOK REVIEWS

(Continued from Page 18)

The section treating physiotherapy is quite complete and discusses hydrotherapy, medical gymnastics, massage, electrotherapy, radiotherapy, climate, aerotherapy, heliotherapy, and psychotherapy.

One of the most valuable features of the book is the detailed descriptions of the various procedures such as transfusion, lumbar and cisternal puncture, thoracentesis, etc. Numerous valuable pictures and diagrams illustrate the various steps.

The last three hundred pages contain the application of therapeutics to particular diseases.

The fourth edition (1931) brings the text up to date, so that such recent developments as the feeding of hog stomach to pernicious anemia patients, the use of B. C. G. in tuberculosis, the value of parathyroid extract in Paget's disease, etc., are fully discussed. Several sections, namely those on myxedema, diabetic coma, and infantile paralysis, have been completely rewritten.

The book is interesting and makes such pleasant reading that it can be recommended as well for its diversification as for its erudition, both to practitioner and to student.

A. B. S.

**Clinical Diagnosis by Laboratory Methods, A Working Manual of Clinical Pathology.** By James Campbell Todd and Arthur Hawley Sanford. Seventh ed. Pp. 765. Illustrated. Philadelphia and London: W. B. Saunders Company, 1931. Price, \$6.00.

This book remains as a monument to its author, the late Dr. James C. Todd. It is the product of years of careful observation and rare discrimination and has continued to improve in clearness of expression and exactness of detail as clinical pathology has developed more definite outline.

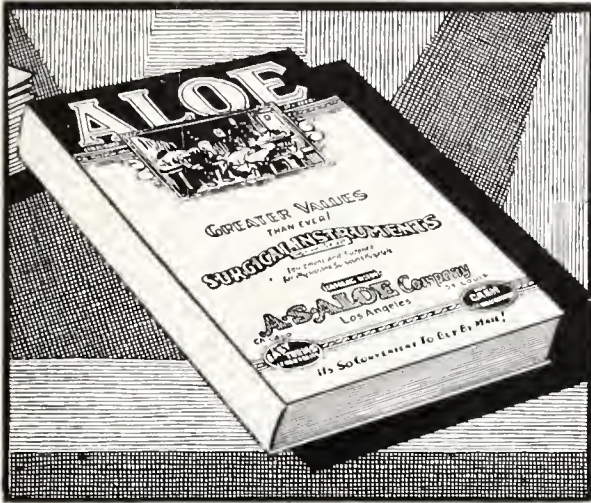
The authors' realization of the needs of the student, growing as it has from teaching experience, has made his book a valuable text for classes. It is moreover a reliable, concise and surprisingly complete source of essential information so often needed by both the laboratory worker and the practitioner of medicine.

The illustrations are abundant, well chosen and well executed. It is a source of some regret that the outside dimensions of the volume have been changed in the later editions to a less handy size.

(Continued on Page 26)



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A pedigreed chow, female, three months old, with severe rickets. Note the bowed fore legs and splayed hind legs. Avitaminosis A also shows in the rough coat and an indication of xerophthalmia. Immediately after this picture was taken, this animal was put on White's Cod Liver Oil Concentrate tablets, being fed not less than 500 Vitamin A units and 200 Vitamin D units per day.



The same chow four months later, after taking White's Cod Liver Oil Concentrate. The photograph was taken on May tenth. Note how the fore legs have straightened and the firm position of the hind legs—no longer splayed; the thick, out-standing coat and complete clarity of the epithelial tissues surrounding the eyes.



Another pedigreed chow, male, which has won five blue ribbons within the last year. This dog was used as a control, and is a brother of the rachitic chow shown in the other illustration—but one litter earlier. This animal was placed on White's Cod Liver Oil Concentrate with the sixth week of age on a vitamin unitage of not less than 500 A and 200 D daily. This picture was taken at ten months of age. Note the extremely heavy, soft fur and splendid stance, general alertness and absence of any evidence of avitaminosis A or D.



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### BOOK REVIEWS

(Continued from Page 20)

It is fortunate that the task of continuing authorship has fallen into such capable hands as those of Dr. A. H. Sanford. The appearance of the seventh edition gives guarantee that the work so well begun by Dr. Todd is to be ably maintained.

H. A. W.

**Die Technik des Ungepolsterten Gipsverbandes.** By Fritz Schnek, with a forward by Dr. Lorenz Bohler. Pp. 165. Illustrated. Wien: Verlag von Wilhelm Maudrich, 1931.

This is a manual for the treatment of fractures with plaster of Paris splints. The author describes in detail the use and application of unpadded plaster of Paris dressings. These dressings, as a rule, are so superior to the padded ones that this detailed description of their use in Bohler's clinic is warmly recommended to all phy-

sicians treating fractures. The illustrations make the book worth while for those whose knowledge of German is scanty.

L. E.

**Einführung in Die Medizinische Röntgentechnik.** By Maximilian F. Block. Pp. 154. Illustrated. Wien: Verlag von Wilhelm Maudrich. 1931.

This is a clear, well-illustrated book. Its use will be impaired in this country, as no American apparatus is listed. For those, however, who are interested in German technique and in German apparatus it will be of interest.

L. E.

**Crippled Children, Their Treatment and Orthopedic Nursing.** By Earl D. McBride. Pp. 280. Illustrated. St. Louis, The C. V. Mosby Company, 1931. Price, \$3.50.

This book presents some useful information in the chapters on postoperative care, instruction to parents and

(Continued on Page 29)



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## BOOK REVIEWS

(Continued from Page 26)

patients, and the care of braces. The greater part of the advice to the nurse, patient and parent has been obscured by a description of the diseases, which may be found in existing books on orthopedics. The important facts could easily be epitomized in a smaller volume. S. L. H.

## TRUTH ABOUT MEDICINES

(Abstracts from reports of Council on Pharmacy and Chemistry of the American Medical Association)

In addition to the articles enumerated, the following have been accepted:

Sandoz Chemical Works, Inc.—Gynergen Solution, 0.1 per cent.

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## NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Elixir No. 2239 Ephedrin Sulphate Two Grains.—It contains ephedrin sulphate (Lilly) (New and Nonofficial Remedies, 1931, p. 177), 0.44 gram in 100 cubic

centimeters (two grains per fluidounce) in a menstruum composed of alcohol, glycerin, sucrose and water, with flavoring agents. Eli Lilly & Co., Indianapolis.

Ventriculin, One Hundred Grams.—Each bottle contains one hundred grams of ventriculin (New and Nonofficial Remedies, 1931, p. 238). Parke, Davis & Co., Detroit.—*Journal of the American Medical Association*, August 8, 1931, p. 391.

## FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in accepted foods:

Kellogg's Rice Krispies (Kellogg Company, Battle Creek, Michigan).—A ready-to-eat, cooked and toasted rice cereal flavored with malt syrup, sugar, and salt. It is claimed to be a delicious, cooked, easily digested cereal.

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(Continued on Page 31)

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## WESTVILLE CREAM

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|                                                 | Grams     | Prot.       | Fat       | CHO.         | Cal. |
|-------------------------------------------------|-----------|-------------|-----------|--------------|------|
| 1½ tablespoonfuls Knox Sparkling Gelatine ..... | 10        | 9           | ..        | ..           | ..   |
| ¼ cup cold water .....                          | ..        | ..          | ..        | ..           | ..   |
| 1 square chocolate, grated .....                | 30        | 4           | 15        | 9            | ..   |
| ¾ cup hot water .....                           | ..        | ..          | ..        | ..           | ..   |
| ¾ cup milk .....                                | 180       | 5           | 7         | 9            | ..   |
| 2 eggs .....                                    | 100       | 13          | 10.5      | ..           | ..   |
| ¼ cup cream, whipped .....                      | 60        | 2           | 18        | 2            | ..   |
| 5 tablespoonfuls sugar .....                    | 40        | ..          | ..        | 40           | ..   |
| 1 teaspoonful vanilla .....                     | ..        | ..          | ..        | ..           | ..   |
| Few grains salt .....                           | ..        | ..          | ..        | ..           | ..   |
| <b>Total</b>                                    | <b>33</b> | <b>50.5</b> | <b>60</b> | <b>826.5</b> |      |

Soak gelatine in cold water. Heat chocolate, water, milk and salt over hot water, then add gelatine and stir until dissolved. Separate eggs and beat egg yolks until lemon colored. Stir hot mixture slowly into egg yolks. Return to stove and heat over hot water until mixture thickens slightly. Remove from stove, add vanilla and chill until nearly set. Beat egg whites until stiff, fold into jelly, also whipped cream. Mold and chill until firm.

## LEMON MIST

(Six Servings)

|                                               | Grams     | Prot.       | Fat       | CHO.         | Cal. |
|-----------------------------------------------|-----------|-------------|-----------|--------------|------|
| 1 tablespoonful Knox Sparkling Gelatine ..... | 7         | 6           | ..        | ..           | ..   |
| ¼ cup cold water .....                        | ..        | ..          | ..        | ..           | ..   |
| 1½ cups hot water .....                       | ..        | ..          | ..        | ..           | ..   |
| Grated rind 1 lemon .....                     | ..        | ..          | ..        | ..           | ..   |
| ¼ cup lemon juice .....                       | 40        | ..          | ..        | 4            | ..   |
| 2 eggs .....                                  | 100       | 13          | 10.5      | ..           | ..   |
| 2 tablespoonfuls sugar .....                  | 16        | ..          | ..        | 16           | ..   |
| <b>Total</b>                                  | <b>19</b> | <b>10.5</b> | <b>20</b> | <b>250.5</b> |      |

Soak gelatine in cold water. Boil rind of lemon in water used for dissolving gelatine; add sugar; pour on soaked gelatine—stir until dissolved. Pour this into well beaten egg yolks. Return to stove and cook over hot water until mixture thickens slightly, stirring constantly—add lemon juice and pinch of salt. When nearly set fold into egg whites which have been beaten stiff. Mold and chill.

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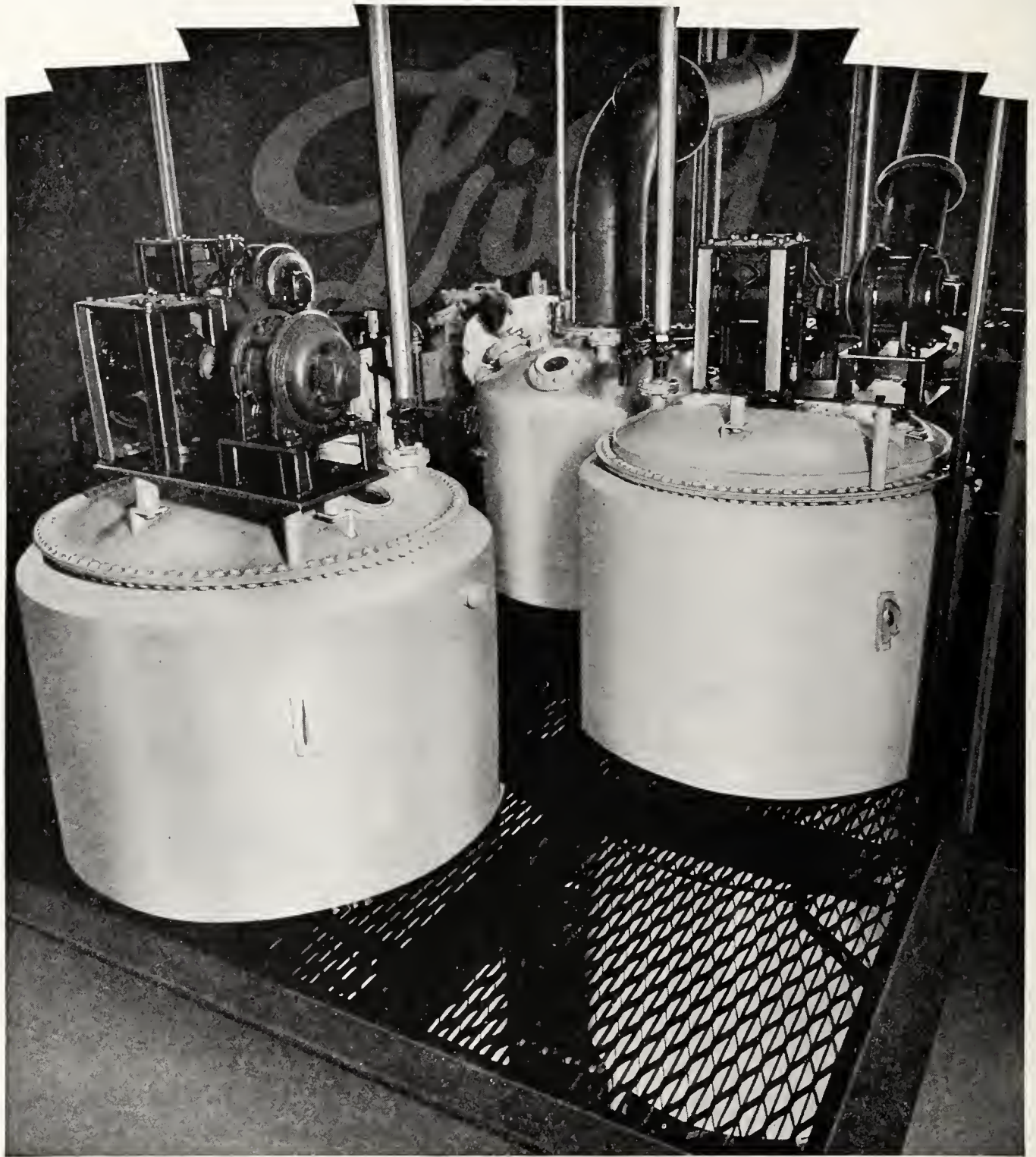
(Continued from Page 29)

other process. Unless otherwise prescribed it can be conveniently ingested with minimum loss of vitamin potency by mixing with cereals, vegetables, fruits, after these have been cooked.—*Journal of the American Medical Association*, August 1, 1931, p. 321.

Mazola (Corn Products Refining Company, New York City).—A canned refined corn oil. It is claimed to be a highly refined corn oil for baking and table uses.

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(Continued on Page 34)



THE production of Liver Extract No. 343, used in the treatment of pernicious anemia, involves elaborate equipment. The two storage tanks of the extract in process, in the foreground above, are seen from the second floor level, as is the still in the center.—View in the laboratories of Eli Lilly and Company, Indianapolis, manufacturers of

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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXV

OCTOBER, 1931

No. 4

## THE POLIOMYELITIS PROBLEM—FROM THE POINT OF VIEW OF ITS EPIDEMIOLOGY\*

By W. LLOYD AYCOCK, M. D.  
*Boston, Massachusetts*

POLIOMYELITIS occupies a relatively minor numerical position among the infectious diseases of childhood, yet hardly any disease is as terrorizing to the public, presents such a problem to the doctor and the health officer, or has been so perplexing to the epidemiologist. A child, who has not been even remotely associated with any suspected source of infection, has a headache, fever and vomiting, and often before it is realized that it is more than a trivial upset, permanent crippling has taken place. These characteristics account for the public alarm when the disease occurs in epidemic form. For the physician, not only is the long-drawn-out care of these patients a problem, but many physicians may not encounter the disease often enough in their practice to maintain adequate facilities for, or even from experience to feel fully familiar with, the diagnosis and treatment of the case. The health officer, pressed for measures of control, has to admit that he can offer little that will insure protection against the disease. The epidemiologist encounters almost unparalleled difficulties in the study of the disease. It is only in the exceptional case that any relationship can be established with other cases. No practical tests have been available for the verification, for example, of suspected abortive cases or healthy carriers, and in the more general epidemiological features he is confronted with many seeming inconsistencies and paradoxes.

### FORMER THEORIES OF EPIDEMIOLOGY OF POLIOMYELITIS

Earlier students of the disease had little upon which to construct a conception of its epidemiology besides such observations as could be made in attempting to trace the infection from one case to the next occurring in the vicinity. One of the theories advanced was that the disease is transmitted by contact—a theory originating not so much in the observation of frequent contact it-

self, but more in the suspicion that mild illnesses coincident with frank cases, not definitely diagnosable but suspected as abortive forms of the disease, aided in the dissemination of the infection. Failing even to find these in sufficient number to account for the spread of the disease, there was added the supposed transmission of the virus through healthy persons. The incompleteness of the early evidence for contact and perhaps the lack of laboratory procedures for its verification did not place the contact theory on such a firm footing that it could not readily be thrown aside for any newly proposed theory, of which there have been many. Failure to find the evidence usually sought to establish contagiousness and the observation of so many cases in which such circumstances could apparently be definitely ruled out led to increasingly bizarre and mysterious theories as to the mode of spread of the virus. Only recently a physician, who had seen the disease develop in a small boy who had been spurred by an infuriated rooster, proposed that this substantiated the idea that the disease was transmitted to man from poultry.

Modern epidemiology does not deal alone with attempts to trace each case to its source of infection, although this in a sense is its ultimate object. It includes analysis of the more general circumstances under which the disease occurs, or with which its occurrence varies, and consists as much in the multiplication of probabilities as in actual demonstration of fact. As Frost has said, errors have arisen not from faults in this method of investigation, but from dealing with insufficient data or from errors of logic in its interpretation. The accumulation of data since the increased occurrence of poliomyelitis in the past twenty-five years and the experimental transmission of the disease to monkeys have enabled studies to be made which were not possible before and which, as we shall see, are essential to an understanding of its epidemiology. I believe the mistake has often been made in assuming that the whole of the epidemiology of the disease is to be seen in the epidemic itself. Since in large part the dissemination of the virus does not manifest itself in such a way as to be detected by observation alone and may even take place in interepidemic periods, it is largely from more indirect studies together with the limited laboratory tests which are available that we are able to formulate anything like a complete idea of the epidemiology of poliomyelitis.

I should like, then, to consider some of these more general features, or what might be called

\* From the Department of Preventive Medicine and Hygiene, Harvard Medical School; and the Research Laboratory of the Vermont Department of Public Health.

\* The work on which this paper is based was supported by the Harvard Infantile Paralysis Commission, a fund privately donated to the Vermont Department of Public Health and a gift from the International Committee for the Study of Infantile Paralysis.

\* This paper is the substance of the DeLamar lecture given at Baltimore, February 6, 1931, and an address before the sixtieth annual session of the California Medical Association at San Francisco, April 27-30, 1931.



circumstantial rather than direct evidence, and in the light of the deductions to which they lead, some epidemiologic observations which when taken alone have seemed to be more in accord with other modes of spread, but which when considered in the light of these more general aspects of the disease not only lose their seeming inconsistency, but, I believe, open up new approaches to the practical control of the disease.

#### THE EXTENT OF THE VIRUS

A point of first importance is the actual extent of the spread of the virus. The idea that this is greater than is indicated by recognizable cases is suggested by evidence of mild forms of the disease and healthy carriers. Frost was first to suggest, from the more rapid decrease in the incidence of poliomyelitis with increase in age in urban than in rural populations, that in older persons there is a widespread immunity from previous exposure to the virus—exposure, in spite of far fewer clinical cases, as extensive as in such common contact diseases as measles and diphtheria. That the age distribution of measles is largely a measure of previous exposure is easily seen from observations of the clinical disease alone. In diphtheria the reasons for attributing an equally extensive immunity among older persons to previous exposure, while not so apparent, are none the less convincing: first, when we consider the significance of the Schick test and, second, the healthy carrier rate, which, in view of the average duration of carriage, is sufficient to account for exposure to the organism to an extent equal to that of immunity as indicated by the Schick test. That the equally extensive immunity to poliomyelitis suggested by the age distribution of the disease actually exists has now been demonstrated by neutralization tests by Doctor Kramer and myself on a small but significant number of individuals at different age groups in urban and rural populations.<sup>1</sup> The results of these tests are summarized in Chart 1. The reasons for interpreting this immunity as an indication of previous exposure to the virus are the same as in the case of diphtheria, with the exception of evidence pertaining to the carrier rate. While no statistics are available concerning the healthy carrier rate in poliomyelitis, the virus has been detected in healthy persons. When we remember the relatively small number of attempts which have been made to detect the virus and the uncertainty of the technique by which this has been accomplished (it is not even readily transferred to the monkey from the spinal cord of known cases), the occasional reported finding of the virus in the upper respiratory passages of healthy persons might well be indicative of a healthy carrier rate not unlike that of diphtheria. When we consider, then, not only that the extent of immunity to poliomyelitis is the same as for measles and diphtheria, but that the rapidity of its development varies in the same way with concentration of population, we have evidence that both the extent and rapidity of the spread of the virus of poliomyelitis are the same as in measles or diphtheria.

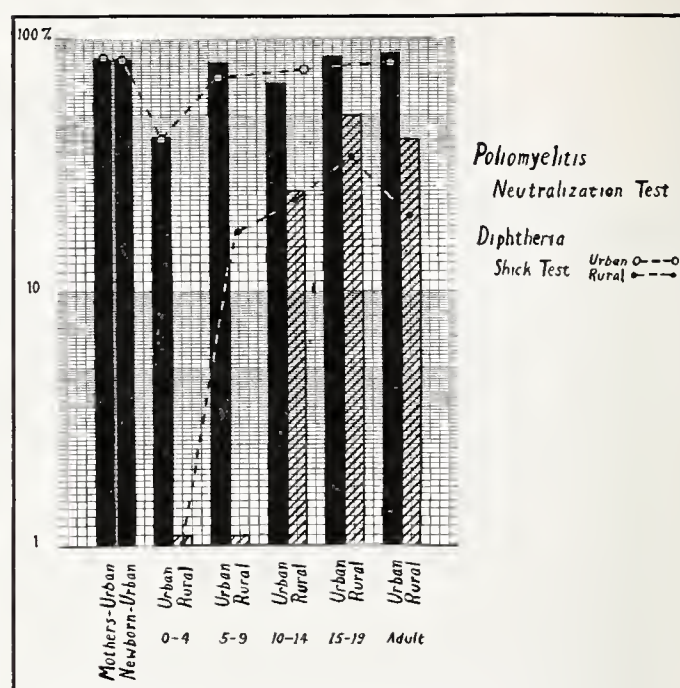


Chart 1.—Showing the percentage of normal individuals tested whose blood serum possessed the property of neutralizing the virus of poliomyelitis. Urban mothers and their new-born infants, and urban and rural individuals of different ages are included. For comparison corresponding tests for immunity to diphtheria are shown. The Schick tests on mothers and the new-born are those summarized in the British Medical Research Council monograph on diphtheria, the urban figures are those given by Park, and the rural figures are those of Kidder in Vermont.

However, it does not necessarily follow from this alone that the mode of transmission of the virus of poliomyelitis is actually the same as in measles and diphtheria. Any other mode of spread equally extensive and similarly influenced by concentration of population might account for exposure of the same order as from contact. For example, in a restricted area of southwestern Nigeria, where conditions are favorable for endemicity of yellow fever, Beeuwkes, Bauer, and Mahaffy<sup>2</sup> have demonstrated the existence of immunity among the native population, giving no history of the disease, which increases with age in somewhat the same order and attains an extent not unlike immunity to the contact diseases. Although no comparable urban and rural figures are given, it would seem likely that in such an area immunity to yellow fever would vary in extent and in rapidity of development with concentration of population in much the same manner as that from a contact infection. But when we add to the correspondence between both the extent and rapidity of exposure to the virus of poliomyelitis with that of measles and diphtheria, the finding of the virus in the upper respiratory secretions of patients suffering from the disease, animals experimentally infected and healthy persons, and the ease with which animals can be given the disease by merely placing a drop of the virus on the nasal mucous membrane, and when we consider further that exposure to the virus of poliomyelitis, as indicated by evidence of immunity, is as world-wide as only contact infections are known to be, we cannot but believe that earlier students of the disease, who from far less complete data than is now available con-



cluded that the disease is transmitted by contact, were right; and that the differences between the epidemiology of poliomyelitis and that of other contact diseases are due not to any difference in the manner or extent of the spread of its virus, but to differences in the frequency with which initial exposure to the virus results in immunization or in the clinical disease.

THE CRITERIA OF CONTACT TRANSMISSION

Some of the features of poliomyelitis which have seemed not to fulfill the criteria for contact transmission and which have been held as arguments against transmission in this manner are the infrequency of contact between cases, the infrequency of multiple cases in families or in institutions, the infrequency of transmission of the disease to nurses and attendants of cases and, in a more general way, the tendency to rural preponderance and the seasonal prevalence of the disease. All of these features are at variance with the common contact diseases, but when viewed in the light of widespread immunization with low disease incidence, the lack of analogy can, I think, be explained. Thus, in view of the relative frequency with which initial exposure in measles, diphtheria, and poliomyelitis results in the clinical disease or, on the other hand, in immunization without disease it would be expected that traceable contact between cases of poliomyelitis would

be encountered comparatively rarely and, conversely, only the exceptional case would be attributable to contact with a previous frank case, the majority arising from contact with mild cases or healthy carriers. The infrequency of multiple cases in families and institutions and the rarity of the disease in nurses or attendants of cases can be explained in the same way. For example, the majority of nurses being adults must be assumed to be immune from previous exposure to the virus, and of those not already immune only a small proportion would be expected to contract the disease on initial exposure, the remainder being immunized without showing signs of the disease. When we consider the occurrence of three cases of poliomyelitis among not more than two hundred or three hundred nurses who attended cases in Massachusetts in 1927 (1189 cases), the frequency of obvious contagion would appear to be as great as would be expected.

Particularly where the working of a rule is obscure, as is the dissemination of the virus of poliomyelitis in its usual manner, an exception being more vivid may serve to emphasize the rule. Thus, the exceptional outbreaks of poliomyelitis, apparently transmitted through milk,<sup>3</sup> have shown just those departures in age, space, and time distribution of cases which would be expected when what might be called more or less orderly contact dissemination of the virus is changed to the simultaneous and selective exposure of a relatively large number of individuals.

RURAL AND URBAN INCIDENCE

The idea of rural preponderance of cases of poliomyelitis has gained emphasis more from the striking occurrence of the disease in remote localities far removed from other cases than from adequate statistical analysis. As a matter of fact, the total incidence of poliomyelitis in the registration area of the United States since the disease was made reportable shows an urban-rural ratio approximately the same as that of measles. But when we examine the individual years we find that this is due to the overwhelming urban preponderance in the great epidemic year of 1916, while most of the other years show a slightly higher rate for the rural portion of the registration area. However, if we exclude the year 1916, we find only a slight rural preponderance, not different from that of whooping-cough. This seeming irregularity may likewise be accounted for by the comparative rarity with which initial exposure results in disease. Thus, on the assumption of a constant exposure rate, greater in urban than in rural population due to concentration of population, falling evenly on individuals not previously exposed and those already exposed, and assuming further that initial exposure produces immunity—either permanent or to be reinforced by subsequent exposures—the number of immune individuals (those exposed at least once) in an urban population would exceed those in a rural population. But due to the more rapid accumulation of immunes, the number of initial exposures in a given period would decrease more rapidly

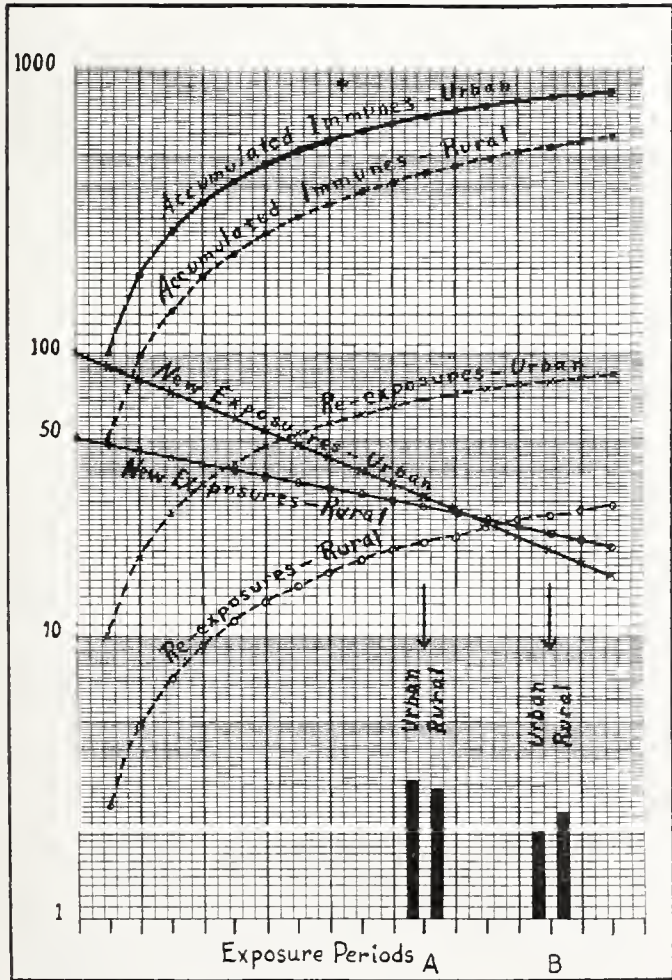


Chart 2.—Schematic representation of the immunization of an urban and a rural population by an organism spread by contact. A. Stage of immunization when an outbreak would tend to be urban. B. Stage when an outbreak would tend to be rural.



in the urban population so that after a time, with an exposure rate in the rural population only one-half of the urban rate, the number of initial exposures would actually exceed those in the urban population. Hence, if immunization of a population has already reached a more advanced point before initial exposures result in disease, as must be the case in poliomyelitis, even with a slower transmission of the virus in a rural population, the number of cases would exceed that in an urban population. This is shown in Chart 2.

#### CAUSAL RELATIONSHIP OF THE SEASONS

Seasonal prevalence is another feature of the disease which does not appear to be in accord with that of contact diseases, but this, too, may be explained by the peculiarly preponderant immunization in poliomyelitis. Since the extent to which a population is immunized by any given age is known, the minimal exposure rate which would be necessary to accomplish this can be figured. Thus, say, in a population of 100,000, in which 90 per cent of adults are immune, indicating at least one exposure to the virus, it can be figured that approximately 2000 new exposures a year, or an average of 167 new exposures a month, would be necessary to maintain immunization to this extent. If we assume that these exposures take place at an even rate the year round, we see (Chart 3) that the number of new exposures taking place in any given month is sufficient to account for the largest number of cases of poliomyelitis occurring in any month in a population of this size even in the worst epidemics (around two cases per thousand). In other words, the worst epidemics which we have could occur without any increase in the rate of spread of the virus over that, which in order to maintain the degree of immunity shown to exist, must be occurring on the average all the time. Thus, we may even speculate that the frequency with which initial exposure to the virus causes immunity or disease may be determined largely according to the season of the year when exposure takes place. It might even be supposed that the preponderance of immunization over disease could be due to a more rapid rate of spread in winter than in summer, as is thought to be the case in the spread of other contact organisms. In this connection it might be said that the idea that epidemics of poliomyelitis are accompanied by an even larger undercurrent of mild illness sufficient to fill in the contact gaps between recognized cases has not been borne out in my experience. While these cases undoubtedly occur, it is possible that the actual number of mild febrile attacks (which are in reality abortive attacks of poliomyelitis) are even more numerous in winter than in summer. In other words, it would seem possible that exposure to the virus in winter might in perhaps a larger number of instances result in just such attacks, while in summer exposure would more often result in the frank disease, due to some seasonal variation in the quality of the virus or in the resistance of the host.

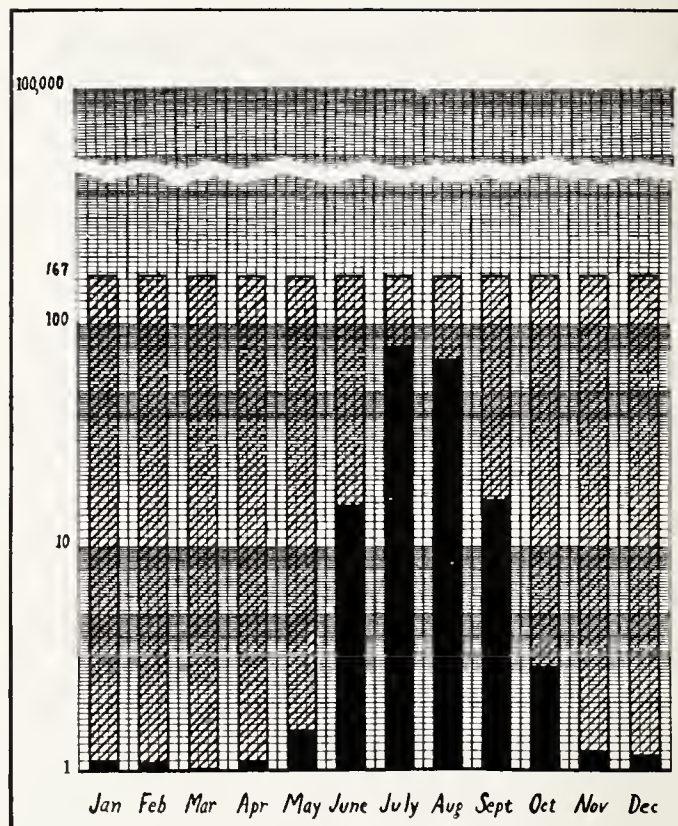


Chart 3.—Showing the average initial exposure rate necessary for the immunization of a population during an average life span of fifty years. A severe outbreak of poliomyelitis (two cases per one thousand population) is superimposed in black to show that the largest number of cases in any month does not exceed the average initial exposure rate.

That season may be an important factor in determining the frequency with which initial exposure to the virus causes disease or immunity is suggested by the correlation of statistics of the disease in cool and in warm climates with changes in season in the two climates. The Northern Hemisphere (northern Europe and the United States) has been supposed to be the belt of highest incidence, but in recent years the occurrence of the disease in more northern populations—for example, Iceland in 1924—suggests that the cooler the climate the higher is the incidence of the disease. As warm climates are approached it diminishes until few cases occur in the tropics. The Southern Hemisphere has an incidence agreeing with corresponding latitudes in the Northern Hemisphere; for example, in New Zealand it compares with that in northern United States. Within the United States itself this variation with latitude is decidedly noticeable, the incidence in the southern states being consistently lower than in the northern states. That the diminished incidence in the South is due to a relative decrease in the frequency with which exposure causes disease and not to lack of exposure to the virus is indicated by evidence of immunity and hence to exposure to the virus in the South as extensive as in the North. As a matter of fact, the age distribution wherever the disease occurs agrees closely with that already shown for the northern United States with the exception of two outbreaks of the “virgin soil” type—on the island of Nauru in 1910 and in New Guinea in 1929, where the age distribution



of cases suggested the absence of a relatively high immunity in adults. This indication of immunity in the South, as extensive as in the North, has been borne out by a series of neutralization tests done by Doctor Kramer and myself on adults who have spent all their lives in a southern city and in whom there was no history of an attack of the disease.<sup>4</sup> According to these tests 90 per cent of adults were immune, a figure agreeing closely with that for normal urban northern adults. It, therefore, appears that the extent to which the virus spreads in the South is equal to that in the North. In this respect poliomyelitis would appear to be quite similar to diphtheria. In spite of the low incidence of diphtheria in the tropics, the carrier rate, as well as the extent of immunity, has repeatedly been shown to be as high as in cooler climates, both of which are indications that the spread of the diphtheria bacillus is as extensive in warm climates as in cool.

#### INFLUENCE OF WARM AND COLD CLIMATES

When we come to examine the seasonal prevalence of poliomyelitis in cool and warm climates, we find one of its curious paradoxes. Although a disease of warm weather, it is less frequent in warm climates, but, nevertheless, the seasonal curves of the disease in both the North and South follow that of the respective seasons. Although the frequency with which the virus produces disease does not correlate with warm weather in the two climates, it does correlate with the fluctuations in seasons in each of the two climates. That is to say, where the change from winter to summer is great (in the North) the incidence of poliomyelitis is high and where this change is relatively slight, as in the South, it is low. We may, therefore, say that the seasonal prevalence of the disease can hardly be due to an enhancement of the virulence of the virus in warm weather, or to the presence of less virulent strains in warmer climates. If it could be assumed that strains of virus in warm climates were less virulent, it would be expected that local southern epidemics might arise from the importation of virulent northern strains. A further indication that the diminution in the incidence of the disease in warm climates need not be attributed to less virulent strains is suggested, for example, by the high (or temperate climate) incidence of diphtheria in Sao Paulo, a place of high altitude only fifty miles more temperate in latitude than Santos, but 2500 feet "cooler" in altitude. It seems hardly likely that entirely different strains of the organism could constantly remain in places so near together.<sup>5</sup>

As a matter of fact, no satisfactory evidence has been adduced for any climatic variation in the virulence of micro-organisms that could explain these variations in the frequency with which disease is produced in the different climates, nor can any change in virulence be hypothesized which could explain both the seasonal and climatic variation in the frequency with which exposure to the virus of poliomyelitis produces immunity or disease.

#### VARYING PHYSIOLOGY OF THE HOST

Climatic differences and seasonal changes in the physiology of the host take place in such a way that by altering resistance they could cause the variations in the frequency with which exposure to the virus of poliomyelitis causes disease or immunization without disease. An example is the climatic difference and seasonal fluctuation in the iodine content of the thyroid gland. The fundamental experiments of Reid Hunt<sup>6</sup> show that such seasonal changes in physiology influence resistance to certain poisons, and in recent years many workers have demonstrated the effects of alterations in physiology upon resistance to infections. It is not meant to imply that such seasonal changes in the body are to be considered as abnormal, but rather normal adjustments to varying environment. Failure of some such adjustment would result in a deficiency, or imbalance, greater in summer than in winter but greater in cooler than in warmer climates. Draper<sup>7</sup> first pointed out indications of physiologic imbalance in persons attacked by poliomyelitis. This would suggest that some such failure of the body to meet the stress of seasonal adjustment may be the factor that determines the frequency with which initial exposure to the virus of poliomyelitis produces the paralytic disease rather than immunization without recognizable signs of the disease. In other words, there would appear to be a form of resistance distinct from that which arises from exposure to the virus (immunity) which determines the result of an individual's first exposure. That this form of resistance (operative against initial exposure) may be distinguished from and thought of as existing independent of specific immunity (derived from previous exposure), I have suggested that it be designated by the term "autarcesis."<sup>8</sup>

#### SOME MAJOR FACTORS IN THERAPY

Let us consider, then, from the point of view of this conception of the epidemiology of the disease the various attempts, some of which might be called conventional, which have been and are being made, as well as those which should be undertaken to control poliomyelitis. I do not do this with any idea of overemphasizing one or discouraging other efforts, but rather that those with more promise may not be neglected. For, as in many other diseases, practical control may come not from one method of approach, but from a combination of several as, for example, in the case of typhoid fever.

*Serum Therapy.*—In earlier times a prominent feature of poliomyelitis was the serious secondary crippling resulting from contractures and deformities from bony growth under constant unequal muscle balance. This undesirable sequel of poliomyelitis has now been to a considerable extent ameliorated, first, through the operative correction of these deformities after they had been allowed to occur and, second, through prevention by means of orthopedic appliances and the preservation of whatever muscle power remains. But from the nature of the lesion causing



paralysis there is no prospect of curing the paralysis after the nerve cells have been destroyed. This nerve cell damage takes place quickly and any attempt to prevent the destruction of nerve cells must be made very early in the course of the disease. The most rational attempts from a theoretical and experimental viewpoint along this line have been the use of immune sera. It has long been known that the blood serum of a person recovered from the disease and that of animals recovered from the experimental disease has a destructive action upon the virus. This led early to the treatment of cases with convalescent serum. At first, patients for the most part were treated after the appearance of paralysis, that is, after the nerve cells were already affected. Later attempts have been directed more to the treatment of patients in the preparalytic stage in the hope that damage to the nerve cells would be forestalled. The results of such therapy are still in question.

With convalescent serum it has not been possible to use a product of standard strength as in the case of other serum therapy. Each lot of the serum employed is only presumptively good. Furthermore, patients have been treated not individually but with an arbitrary, uniform dose of serum. Under these circumstances imperfect results would be expected. In the second place, since it has not been feasible to do an actually controlled experiment such as, for example, the treatment of alternate patients and, since it is never possible to predict the severity of the case during its early stages, the results of serum treatment are open to the criticism that by reason of early diagnosis mild and nonparalytic cases, which would ordinarily be missed, are included. However, after making what seems to be more than ample allowance for the inclusion of such cases, the outcome of serum-treated patients<sup>9</sup> is, on the average, so much more favorable than untreated patients reported in the same outbreaks that, until it can be shown that mild and nonparalytic forms occur in very much larger numbers than has been shown to be the case, the early use of convalescent serum must be considered as effective. Since the supply of convalescent serum is necessarily limited, and in view of recent tests suggesting that normal adult serum may contain as much<sup>1</sup> or more<sup>10</sup> of the neutralizing property than convalescent serum, it seems possible that the use of normal adult serum may vastly facilitate serum therapy. This would appear the next step until such a time as hyperimmune serum, for which there is now some experimental hope,<sup>11</sup> has been produced.

*Artificial Respiration.*—We can hardly pass from the treatment of the disease without mention of the use of artificial respiration as a temporary but life-saving aid in cases with respiratory involvement, a major factor in mortality from poliomyelitis. In general paralysis it is at its height during the acute stage, following which there is, in the vast majority of cases, a varying amount of recovery. This more severe temporary paralysis would seem to be due not to nerve

cell destruction, but to temporary interference with the function of nerve cells which are not actually to be destroyed. In most parts of the body, muscles may be completely out of commission for a short time without serious danger. One of the most striking examples of this is paralysis of the deglutitory system, which is oftentimes complete during the acute stage, after which recovery is quite as complete. Fortunately the patient may survive a good many days without swallowing, but once the respiratory muscles become completely paralyzed there has been until recently no satisfactory method of relief. Within the past two and a half years the Drinker respirator has been employed and has undoubtedly been a life-saving measure.

Due to difficulties in diagnosis and the evident necessity of early treatment, even a greatly improved serum therapy such as an adequate supply of hyperimmune serum, however desirable, can hardly be looked upon as a satisfactory solution of the poliomyelitis problem.

#### THE PREVENTION OF POLIOMYELITIS

As to the prevention of the disease by attempts to check the spread of virus, there is, I think, in view of the epidemiologic evidence for widespread distribution of the virus, little hope along the lines of isolation and quarantine of cases or of carriers. This, of course, does not mean that such measures should not be employed wherever possible as individual prophylaxis. Another of these more conventional methods of attack is that of artificial immunization.

Although it may be possible to passively immunize individuals for a short time by the administration of immune serum, there does not seem to be any very great prospect that this could become of very general effectiveness for the reason that it would necessarily be limited to those known to be exposed to sources of infection, only a very small percentage of whom are to develop the disease, and especially in view of the fact that the vast majority who develop the disease are not known to have been exposed to any source of infection.

Monkeys can be actively immunized by a tedious series of intracutaneous inoculations of the active virus, but this does not hold a great deal of promise for the reason that, even though non-immunes could be selected on the basis of neutralization tests, we should be at the pains of immunizing large numbers of individuals in order to protect a small fraction among them who actually will develop the disease upon exposure to the virus. Having in mind various accidents of immunization, it does not seem likely on account of the low percentage efficacy of such a method—even though the procedure becomes possible through further experimentation—that it could become of general practical use.

Thus, while much can be done in the therapeutic control of the disease—the prevention of secondary crippling, the prevention of mortality from temporary paralysis of respiration, and with



a promising outlook for the prevention of paralysis by serum therapy—the difficulties in making these measures available make it quite apparent, I think, that our efforts should turn even more to the prevention of the disease.

As indicated by this résumé of the epidemiology of the disease, the dissemination of the virus of poliomyelitis represents a parasitism so well adapted to ordinary and irreducible human contact that there would seem to be little hope of instituting measures which could effectively check the spread of the virus; and it would also appear that, due to the epidemiological peculiarities of the disease, passive or active immunization can hardly be looked upon as a practical means of preventing the occurrence of the disease. I therefore feel that this appraisal of the epidemiology of poliomyelitis suggests that none of these conventional methods of approach will afford a solution of the poliomyelitis problem and that we should turn to the study of the physiological fault which determines the disease on first exposure to the virus in the hope that this may be corrected either individually or en masse, so that initial exposure to the virus would regularly cause immunity rather than the paralytic disease. In other words, further studies of the problem of poliomyelitis should include not only its bacteriology and immunology, but also an attempt to determine the nature of its autarceology.

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## MENINGEAL ALLERGY IN TUBERCULOSIS\*

RESEARCH PRIZE PAPER OF THE SIXTIETH ANNUAL SESSION OF THE CALIFORNIA MEDICAL ASSOCIATION

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THIS paper presents the results of an experimental investigation of the effect of the injection of tuberculin into the spinal canal and cranial cavity of normal and tuberculous guinea pigs.

#### PLAN OF THIS STUDY

- I. The Problem.
- II. Experimental Procedures.  
Methods.  
Sources of Error.  
Tuberculin Control.  
Technique.
- III. Results.  
Intraspinal Injections.  
Intracerebral Injections.  
Grysez Test.
- IV. Conclusions.  
Chart.  
Tables 1 to 6.

The high mortality in tuberculous meningitis, despite advances in the treatment of other types of tuberculosis, makes welcome any scientific information throwing light on this dreadful malady. Although a few authentic, adequately controlled "cures" or recoveries are on record,<sup>1,2</sup> the fatalities still approximate 100 per cent. Of late years many of the symptoms of tuberculosis have been explained, tentatively at least, on an allergic basis—a reaction of the affected organ to the protein products of decomposed tubercle bacilli—what Long calls a visceral tuberculin reaction. While engaged in studying some cases of tuberculous meningitis, we were led to question the causation of the major symptoms, even death itself, with the query: Could these be explained by the action of tuberculin on the nervous system? The fleeting variability or transient character of the clinical findings, deep reflexes, neck signs and, at times, cranial nerve palsies, suggested some toxic or allergic process rather than fixed tissue change.

Allergic or transient responses to tuberculin in other parts of the body are well known. We need only enumerate the intradermal test of Mantoux, the percutaneous test of Pirquet, the transcutaneous test of Moro, the subcutaneous test of Trudeau, the ophthalmic test of Wolf-Eisner and of Calmette, the testicular reaction of Long, the peritoneal injection of Gardner, and the intratracheal and intrapulmonic tuberculin reactions.

Tuberculin within the central nervous system has been less well exploited. We have the statement of Calmette<sup>3</sup> that the brain is the most

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TABLE 1.—*Spinal Trauma and Mortality*

| Tuberculin     | Tuberculous |              |     |          |              |    | Non-tuberculous |              |     |          |              |     |
|----------------|-------------|--------------|-----|----------|--------------|----|-----------------|--------------|-----|----------|--------------|-----|
|                | D           | Flicked<br>L | %D  | Not<br>D | Flicked<br>L | %D | D               | Flicked<br>L | %D  | Not<br>D | Flicked<br>L | %D  |
| O. T. ....     | ---         | ---          | --- | 2        | 2            | 50 | 7               | 2            | 77  | 0        | 2            | 0   |
| 1-10 .....     | 9           | 1            | 90  | 2        | 3            | 40 | 3               | 6            | 33  | 1        | 2            | 33  |
| 1-100 .....    | 3           | 5            | 60  | 2        | 5            | 28 | ---             | ---          | --- | ---      | ---          | --- |
| Ringer's ..... | 1           | 5            | 16  | 1        | 6            | 15 | ---             | ---          | --- | ---      | ---          | --- |
| Puncture ..... | 0           | 6            | 0   | ---      | 4            | 0  | ---             | ---          | --- | ---      | ---          | --- |
|                | 13          | 17           | 41  | 7        | 20           | 26 | 10              | 8            | 55  | 1        | 4            | 14  |

sensitive tissue to tuberculin. Lingelsheim<sup>4</sup> noted that the intracerebral injection of small doses of tuberculin, from three to four milligrams, suffices to kill a normal guinea pig, while the subcutaneous injection of as much as one gram of tuberculin will not result in death. Neufeld<sup>5</sup> attempted to prove that small doses of peptone or the bouillon extract of glycerine culture gave the same results. Borrel,<sup>6</sup> however, contends that in reality larger doses of peptone are necessary, that is, nearly 20 milligrams, and the symptoms are entirely different. Further, in order to obtain the specific effect of tuberculin, washed dead tubercle bacilli may be injected; 0.5 milligram intracerebrally gives all of the symptoms of specific intoxication. Borrel reported also that, whereas in the normal guinea pig from three to four milligrams were necessary to cause death from cerebral inoculation, this result was obtained in the tuberculous guinea pig with only 0.001 milligram.

There are several reports of the intraspinal injection of tuberculin in the treatment of human tuberculous meningitis<sup>7, 8</sup>—in some cases with recovery. Austrian<sup>9</sup> experimentally produced tuberculous meningitis in rabbits by intraspinal and intracerebral inoculations of tuberculous cultures. The intraspinal administration of from 1 to 20 milligrams of albumose-free tuberculin hastened the fatal termination. Likewise, the intraspinal injection of "tuberculized serum" (blood serum of a rabbit which had previously

received tuberculin intravenously) and of blood serum from tuberculous rabbits yielded negative results.

Other experimental work has an indirect bearing on this subject. Calmette<sup>3</sup> credits Grysez with a test for the detection of tuberculous meningitis which consists of the intraspinal injection of 0.5 cubic centimeter centrifuged tuberculous spinal fluid into a sensitized guinea pig. The animal is said to die within four hours. This test would presumably be dependent on the presence of tuberculous products in the spinal fluid. No quantitative information on the toxicity of intraspinal injections of various dilutions of tuberculin in either normal or tuberculous guinea pigs could be discovered in any of the literature available.

Soper and Dworski<sup>10, 11</sup> injected tubercle bacilli from cultures into the cisterna magna of sensitized rabbits and obtained an early reaction of short duration which might be attributed to meningeal allergy. An acute cellular reaction took place in the meninges, with neurologic and systemic symptoms not noted on arachnoidal injections in normal rabbits. However, controls with injection of other foreign bodies in the sensitized animals were not performed. Such controls would appear essential from the work of Essick<sup>12</sup> and Goldman,<sup>13</sup> showing the response to injection of foreign substances into the meninges. Subsequent experiments with very few organisms (two hundred bacilli) did not excite the acute reaction in the sensitized rabbits. These experiments are of the utmost interest, for they indicate healing of tuberculous meningeal lesions as a result of previous sensitization. The number of animals is small. This work needs confirmation since Manwaring has sounded the warning that dogs tend to recover spontaneously following the injection of tubercle bacilli into the meninges.

Other instances of experimental meningitis<sup>14, 15</sup> are less definitely related to our problem since the animals were not previously sensitized—at best the immediate reactions are equivalent to those obtained by the injection of tuberculin into the meninges of normal animals.

The presence of tubercle bacilli in the meningeal spaces has more than an experimental aspect, however, inasmuch as Rich and McCordock<sup>16</sup> have demonstrated that human meningeal tuberculosis probably arises in most cases from a ruptured lesion in the cortex, pouring out tubercle bacilli and tuberculous products into the sub-

TABLE 2a.—*Effects of Anesthetic*

| 1. Under analogous conditions.     |       |     |     |          |     |     |  |  |
|------------------------------------|-------|-----|-----|----------|-----|-----|--|--|
|                                    | Ether |     |     | Novocain |     |     |  |  |
|                                    | D     | L   | %D  | D        | L   | %D  |  |  |
| Tuberculin 50 mg....               | 4     | 0   | 100 | 3        | 1   | 75  |  |  |
| Tuberculin 5 mg.....               | 1     | 3   | 25  | 2        | 2   | 50  |  |  |
| Ringer's solution ....             | ---   | 1   | 0   | 1        | --- | 100 |  |  |
| Punctured alone ....               | ---   | 1   | 0   | ---      | 1   | 0   |  |  |
|                                    | 5     | 5   | 50% | 6        | 4   | 60% |  |  |
| 2. Not under analogous conditions. |       |     |     |          |     |     |  |  |
|                                    | Ether |     |     | Novocain |     |     |  |  |
|                                    | D     | L   | %D  | D        | L   | %D  |  |  |
| Tuberculin 500 mg.                 | 4     | 2   | 66  | 4        | 0   | 100 |  |  |
| Tuberculin 50 mg....               | 4     | 0   | 100 | 3        | 1   | 75  |  |  |
| Tuberculin 5 mg.....               | 1     | 3   | 25  | 2        | 2   | 50  |  |  |
| Ringer's solution....              | 0     | 1   | 0   | 1        | 0   | 100 |  |  |
| Puncture alone.....                | 0     | 6   | 0   | 0        | 1   | 0   |  |  |
| Gentian violet.....                | ---   | --- | --- | 0        | 4   | 0   |  |  |
|                                    | 9     | 12  | 44% | 10       | 8   | 60% |  |  |



TABLE 2b.—Control on Solutions

|                      | Tuberculous |    |     | Non-tuberculous |    |    | Total |     |    |
|----------------------|-------------|----|-----|-----------------|----|----|-------|-----|----|
|                      | D           | L  | %D  | D               | L  | %D | D     | L   | %D |
| Gentian violet ..... | 10          | 13 | 44  | 2               | 3  | 40 | 12    | 16  | 43 |
| Saline .....         | 3           | 14 | 18  | 0               | 5  | 0  | 3     | 19  | 15 |
| <b>Ringer's</b>      |             |    |     |                 |    |    |       |     |    |
| Intraspinal .....    | 2           | 38 | 5   | 0               | 12 | 0  | 2     | 50  | 4  |
| Intracerebral .....  | 6           | 26 | 19  | 0               | 11 | 0  | 6     | 37  | 15 |
|                      | 21          | 91 | 187 | 2               | 31 | 6  | 23    | 122 | 16 |

arachnoid space. They were able to locate the original lesion in thirty-six out of forty cases examined at necropsy; in the others the entire central nervous system was not available for examination.

Although many of these studies are not concerned primarily with the rôle of allergy in tuberculous meningitis, they suggest the importance of this factor. Hence we were prompted to search for corroboration of these views by testing the reaction of tuberculous guinea pigs to intraspinal and intracerebral injections of tuberculin.

EXPERIMENTAL PROCEDURES

Method:

The general plan was to inject tuberculin in various dilutions into the central nervous system of tuberculous and nontuberculous animals. Guinea pigs were chosen because of their marked allergic response to tuberculosis. It is true that the infected guinea pig does not manifest as high a degree of allergy to tuberculosis, as measured by intracutaneous and subcutaneous tuberculin tests, as does the human patient. On the other hand, the human patient has long been known to suffer from anergy or depression of skin sensitiveness in tuberculous meningitis, although the work of Happ<sup>17</sup> reveals that this is only relative, larger doses of tuberculin showing the sensitivity to be present.

The number of animals used was 680, of which 480 were tuberculous and 198 were normal. Tuberculosis was given to the guinea pigs by the injection of a measured amount of a standard culture of tubercle bacilli calculated to produce a generalized tuberculosis within two to three months. In most cases 0.0001 milligram H. 98 was inoculated subcutaneously in the abdomen

and the animal used at the end of three months. Each animal at the start weighed about 600 grams. The avenue for injection in most of the experiments was intralumbar or intracerebral (trephine). The tuberculin used was O. T. human. Because of the variability in strength of different samples of tuberculin, the same stock number was used after the experiments proper were started. The Cutter Laboratory kindly supplied tuberculin for the final experiments. Even though we eliminated all obvious sources of error by experimentation, further control was exercised by injecting both normal and tuberculous guinea pigs on the same day with the same substances. All of the guinea pigs were tested for skin sensitivity to tuberculin one week before the injections; the tuberculous pigs gave positive reactions in all but one case.

In general the following dilutions of tuberculin were employed: O. T. (undiluted), 1-10, 1-100 and 1-1000, with plain saline or Ringer's solution. As a rule we injected groups of five normal guinea pigs and five tuberculous. This procedure was not followed strictly throughout because of the limited number of guinea pigs. Because of the inability to control the findings with spinal fluid records, and the large number of control factors, death was taken as the end point or basis of criteria for reactions. Animals dying within twenty-four hours were recorded as reacting to tuberculin; those living beyond this time were counted as not reacting. Observation of the latter for from forty-eight to seventy-two hours revealed that very few died who survived the first twenty-four hours. The living guinea pigs were killed in most instances in one or two days and the amount of tuberculosis noted at autopsy.

TABLE 3.—Effects of Tuberculin

| Preliminary Intraspinal Injections of 0.5 Cubic Centimeters. |             |    |      |        |       |       |       |    |      |
|--------------------------------------------------------------|-------------|----|------|--------|-------|-------|-------|----|------|
| Tuberculin                                                   | Tuberculous |    |      | Normal |       |       | Total |    |      |
|                                                              | D           | L  | %D   | D      | L     | %D    | D     | L  | %D   |
| 500 mg. ....                                                 | 2           | 2  | 50.0 | 7      | 4     | 64.0  | 9     | 6  | 80.0 |
| 50 mg. ....                                                  | 11          | 4  | 73.0 | 4      | 8     | 33.3  | 15    | 12 | 55.6 |
| 5 .....                                                      | 5           | 10 | 33.3 | 0      | 3     | 0.0   | 5     | 13 | 27.8 |
| 0.5 .....                                                    | 1           | 1  | 50.0 | .....  | ..... | ..... | 1     | 1  | 50.0 |
| —0.5* .....                                                  | 5           | 1  | 84.3 | 3      | 0     | 100.0 | 8     | 1  | 90.9 |
| Ringer's .....                                               | 2           | 11 | 15.4 | 0      | 2     | 0.0   | 2     | 13 | 13.4 |
| Saline .....                                                 | 1           | 2  | 33.3 | 0      | 2     | 0.0   | 1     | 4  | 20.0 |
|                                                              | 27          | 31 | 44.1 | 14     | 19    | 42.4  | 41    | 50 | 45.0 |

\* Includes dilutions 0.05 to .00005.

TABLE 4.—*Effects of Intraspinal Injections of 0.2 Cubic Centimeters*

| Mg. O. T.      | Tbc. |    |       | Normals |    |       | Total |     |       |
|----------------|------|----|-------|---------|----|-------|-------|-----|-------|
|                | D    | L  | %D    | D       | L  | %D    | D     | L   | %D    |
| 200 .....      | 22   | 2  | 91.7  | 1       | 10 | 9.1   | 23    | 12  | 65.7  |
| 20 .....       | 15   | 11 | 57.7  | 3       | 7  | 30.0  | 18    | 18  | 50.0  |
| 2 .....        | 2    | 10 | 16.0  | 2       | 7  | 22.2  | 14    | 17  | 19    |
| 0.2 .....      | 1    | 10 | 9.1   | 0       | 5  | 0.0   | 1     | 15  | 6.3   |
| Ringer's ..... | 0    | 27 | 0.0   | 0       | 10 | 0.0   | 0     | 37  | 0.0   |
| Saline .....   | 2    | 11 | 15.3  | 0       | 3  | 0.0   | 2     | 14  | 12.6  |
|                | 42   | 71 | 37.1% | 6       | 42 | 12.5% | 48    | 113 | 30.0% |

Sources of Error:

The foregoing represents the general plan finally followed; the earlier experiments were largely devoted to eliminating sources of error and establishing adequate controls. The chief sources of error lay in (1) false punctures (failure to enter the central nervous system or meninges) and leakage; (2) trauma or death from (a) the operative procedure itself, (b) the volume of fluid injected, (c) the anesthetic, and (d) the toxicity of the diluents, saline, gentian violet.

*False Puncture.*—In performing intraspinal injections one must make certain that the needle is in the spinal canal. In the guinea pig the spinal cord fills the entire canal, making it impossible to withdraw any fluid. If paralysis follows the intraspinal injection, entrance to the spinal canal is assured. This occurred in 36 of 199 punctures. Hence to make certain of entry, one of two methods presented itself: first, the use of dyes mixed with the tuberculin, to be located subsequently at necropsy; second, by moving the needle from side to side (flicking) when it had entered the canal, a paraplegia could be produced in every instance. Both methods were tried. An aqueous solution of gentian violet one per cent and higher dilutions in Ringer's solution were used in thirty-two cases in which the discoloration of the spinal sheaths was searched for at necropsy twenty-four hours later. The dye was located inside the canal in twenty-two instances, outside in four, and in six others, in which mainly higher dilutions were used, no trace of the dye was visible. This method was one of the first tried and our technique was still being perfected. It now became necessary to run a further control on the toxicity of the dye. The percentage of deaths with the dye was quite high; therefore this method was discarded (see below). We then resorted to "flicking" the needle, with re-

sultant paraplegia in every one of forty-six cases. Since the mortality in the latter animals was greater than in the rest of the series, the method was given up (see Tables 1 and 2). We gave up the use of both of these checks after discovering that both by the feel of the needle in the canal and by the direction of the needle and syringe when in place (perpendicularly in line with the spine), we could be certain of our puncture in every case. The intracerebral technique (trephine) forms a further control against false puncture.

*Leakage* through the channel made by the needle puncture is another source of error, particularly when a large-gauge needle is used. For this reason a small needle, No. 26 gauge and five-eighths inch long, was later used.

*Trauma* arising from the operative procedure: In fifteen guinea pigs (ten tuberculous, five normal) punctured without injection, there were no fatalities.

The *volume* of fluid injected was thought a possible factor in increasing the mortality; hence 0.2 cubic centimeter was injected instead of 0.5 cubic centimeter.

Tables 3 and 4 reveal a higher death rate with the Ringer's and saline solutions in the 0.5 cubic centimeter volume as contrasted with the 0.2 cubic centimeter. The combined mortality in the 0.5 cubic centimeter volume was 15 per cent (three out of twenty) and only 3.7 per cent (two out of fifty-one) in the 0.2 cubic centimeter.

*Anesthetic.*—A control series was conducted to compare the effects of ether with those of subcutaneous injection of novocain (see Table 2a). The figures did not indicate that novocain was better than ether in these cases.

*Toxicity of the Diluents.*—Saline was contrasted with Ringer's solution as a diluent because saline and other solutions have been

TABLE 5.—*Effects of Tuberculin*

| Intracerebral Inoculation |      |    |      |        |    |      |       |     |      |
|---------------------------|------|----|------|--------|----|------|-------|-----|------|
| Tuberculin                | Tbc. |    |      | Normal |    |      | Total |     |      |
|                           | D    | L  | %D   | D      | L  | %D   | D     | L   | %D   |
| 100 mg. ....              | 29   | 4  | 77.8 | 12     | 3  | 80.0 | 41    | 7   | 85.4 |
| 10 mg. ....               | 23   | 10 | 69.6 | 6      | 8  | 42.9 | 29    | 18  | 61.7 |
| 1 mg. ....                | 12   | 19 | 38.7 | 2      | 12 | 14.2 | 14    | 31  | 31.1 |
| 0.1 mg. ....              | 7    | 24 | 22.5 | 1      | 12 | 7.6  | 8     | 36  | 18.1 |
| Ringer's 0.1 .....        | 6    | 26 | 18.7 | 0      | 11 | 0.0  | 6     | 37  | 13.9 |
|                           | 77   | 83 | 48.0 | 21     | 46 | 31.3 | 98    | 129 | 43.1 |



TABLE 6.—Grysz Test

| No. | Name of Patient    | Date Inoc. Tbc. Culture | Date Inoc. 0.5 cc. Sp. Fld. | Diagnosis              | Results        | Amount of Tbc. |
|-----|--------------------|-------------------------|-----------------------------|------------------------|----------------|----------------|
| 1   | C. Franklin .....  | 1-9                     | 2-24-30                     | Epidemic meningitis    | Died 20 hrs.   | 3              |
| 2   | A. Martinez .....  | 1-9                     | 2-24-30                     | Tuberculous meningitis | Killed 2-26-30 | 0              |
| 3   | M. Urrea .....     | 2-6                     | 3-3-30                      | Tuberculous meningitis | Died 3-17      | 4              |
| 4   | A. Rodriguez ..... | 2-6                     | 3-3-30                      | Tuberculous meningitis | Died 3-17      | 5              |
| 5   | A. Rodriguez ..... | 2-6                     | 3-3-30                      | Tuberculous meningitis | Died 3-5       | 5              |
| 6   | R. Rico .....      | 2-6                     | 3-3-30                      | Tuberculous meningitis | Killed 3-5     | 5              |
| 7   | F. Brano .....     | 2-6                     | 3-3-30                      | Tuberculous meningitis | Killed 3-5     | 5              |
| 8   | B. Morales .....   | 1-23                    | 3-8-30                      | Tuberculous meningitis | Killed 3-10    | 5              |
| 9   | S. Vallen .....    | 1-23                    | 3-21-30                     | Tuberculous meningitis | Killed 3-24    | 14             |
| 10  | J. Mullen .....    | 1-23                    | 3-21-30                     | Tuberculous meningitis | Killed 3-24    | 7              |
| 11  | E. Jenkins .....   | 2-27                    | 4-16-30                     | Tuberculous meningitis | Killed 4-18    | 11             |

reported toxic to the meninges.<sup>18 19</sup> In the tuberculous guinea pigs the mortality in the saline controls was 17.6 per cent; with Ringer's, 5 per cent. In the normals there were no fatalities in either the saline or Ringer's solution controls.

The toxicity of gentian violet was checked and the mortality found high, 43 per cent for all cases (twelve out of twenty-eight). In the lower dilutions, in which the mortality was less, the dye was too dilute to be visible the next day.

Although the number of animals used for the above controls was not always impressive, the minimal mortality with Ringer's solution rules out trauma as a very important factor, and every experiment contained adequate controls within itself in the form of Ringer's solution and normal animals.

Tuberculin Control:

Since in using O. T., the active principle, tuberculin, is diluted, we decided to run a control series of experiments on the medium in which the tubercle bacilli were grown. The Cutter Laboratory, who supplied the control material, gave the following formula for the medium:

- By weight:
- American peptone, 2 per cent.
  - NaCl (C. P.), 0.5 per cent.
  - Liebig's meat extract, 0.5 per cent.

- By volume:
- One-half saturated solution Na<sub>2</sub>CO<sub>3</sub>, 0.5 per cent.
  - Boil twenty minutes; filter; add glycerin, 4 per cent.

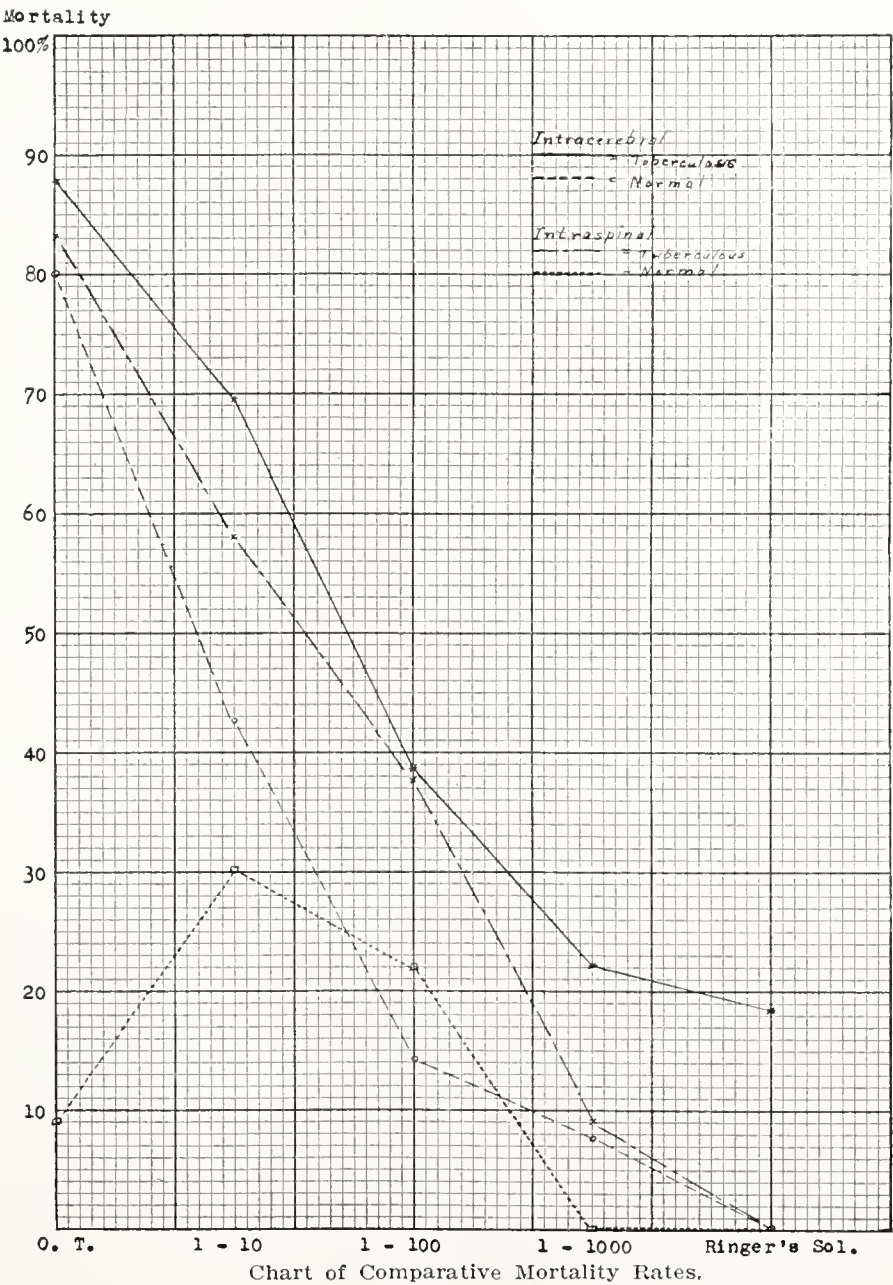
This is then concentrated to one-tenth volume, as in making tuberculin O. T.

Seventy-six guinea pigs, including normal and tuberculous animals, in two groups, were injected with control medium and tuberculin, respectively, undiluted, and in dilutions of 1-10, 1-100, and 1-1000. In the intraspinal injections in tuberculous guinea pigs, 42 per cent receiving the control medium died, whereas

50 per cent receiving the tuberculin died. In the normal animals the mortality for the medium was 16 per cent as contrasted with 33 per cent for the tuberculin. In the intracranial injections in tuberculous animals the mortality for the medium was 47 per cent, for the tuberculin 75 per cent.

Technique:

Intraspinal and intracerebral (trephine) inoculations were used. Other methods attempted were cisternal, intracerebellar, and intracerebral through the orbital route. Cisternal puncture was





unreliable because of the impossibility of withdrawing any spinal fluid, and hence we were unable to tell when the needle had reached the proper depth. Even on cutting down to the occipito-atlantoid ligament, the cisternal space was found to be too small. It was, however, possible to pass a long needle through the foramen magnum up into the cerebellum if the head was sharply flexed. This procedure was carried out fifteen times. Although the definite ataxia and nystagmus which invariably followed lent a sense of security to insertion of the fluid, the intracerebellar route was given up because death occurred in each instance, probably from edema of the posterior fossa.

Intracerebral inoculation through the orbit was tried in nine cases. Four tuberculous guinea pigs so injected with 200, 20, 2, and 0.2 milligrams of tuberculin, respectively, survived, while in a similar group of nontuberculous pigs the three larger doses proved fatal. Since the chance for error, owing to failure to enter the cranial cavity, appeared to be greater than in the method finally used, this route was abandoned.

*Intraspinal Method.*—The hair over the lower back was shaved, the animal anesthetized lightly with ether, and the skin swabbed with mercurochrome. An incision three-fourths to one inch long was made over the lumbar spinous processes. A tuberculin syringe fitted with a needle five-eighths inch long, gauge No. 26, was held in the right hand while the second interspace above the sacrum was palpated with the index finger of the left hand. The needle was then inserted through the interspace downward and backward into the spinal canal. The fluid was slowly injected, the needle withdrawn, mercurochrome applied and the wound closed with skin clips. The technique, after it was developed, was readily and accurately performed.

*Intracerebral Method.*—Intracerebral injections were made after a modification of the technique which Manwaring used to produce experimental tuberculous meningitis in dogs. The procedure consisted of two stages, performed two or three days apart. In the first stage the hair on the scalp was plucked, a triangular flap of skin was removed under ether anesthesia, the scalp was exposed and swabbed with mercurochrome. With a dental burr a hole was drilled through the skull down to the dura, at a point to the right of the midline and five millimeters posterior to a line connecting the posterior angle of the orbital fissures. Then the area was sealed with a drop of melted paraffin. In the second stage, 0.1 cubic centimeter of the test solution was injected by a five-eighths inch needle, gauge No. 26, through the trephine opening, inserted half its length directly downward. No anesthetic was given in the second stage, but the guinea pig was held down firmly by an assistant during the injection.

#### RESULTS

##### *Intraspinal Injections:*

Intraspinal injections were given to 271 guinea pigs. Of these, 83 were normal and 188 tuber-

culous. These animals received tuberculin in varying dilutions, in series of ten, from full strength down to 1:1,000,000. Only one animal was injected for each dilution below 1:1000, hence these figures were of little value. Inoculations were made in amounts of 0.75 cubic centimeter, 0.5 cubic centimeter, and 0.2 cubic centimeter. Only five guinea pigs received 0.75 cubic centimeter and all but one died. Most of the 0.5 cubic centimeter injections were performed when the technique was being perfected and controls studied. In the later experiments, 0.2 cubic centimeter was used in 113 tuberculous guinea pigs and in forty-eight normals.

As to results the salient features are:

1. No mortality with 0.2 cubic centimeter of Ringer's solution in either ten normal or twenty-seven tuberculous guinea pigs. Apparently no serious injury to the guinea pig arose from the intraspinal technique plus the anesthetic and the volume of fluid injected. Hence the Ringer's solution may be taken as a control for the tuberculin injections in both the normal and tuberculous guinea pigs.

2. The lack of reaction to the subcutaneous administration of O. T. in doses as high as one gram in nontuberculous guinea pigs contrasts strikingly with the toxicity of this same substance for the central nervous system. The intraspinal injection of as little as 0.2 milligram of O. T. was sufficient to cause the death of 22 per cent of the normal guinea pigs tested, while 20 milligrams killed 30 per cent.

On the other hand, the tuberculous guinea pig appears more susceptible to almost any form of trauma. This is suggested by the results of the injection of Ringer's and of saline solution. Of fifty-six tuberculous guinea pigs five, or nine per cent, were killed, while of seventeen controls not one died, as shown in Tables 3 and 4. We can appreciate, therefore, the lack of significance of the differences. The higher susceptibility of the tuberculous guinea pigs to nonspecific injury might well account for the apparent increase in mortality on the injection of the solutions of tuberculin, which even in normal animals were sufficient to produce a certain number of deaths.

3. Progressive rise in mortality with increasing strength of tuberculin—from 9.1 to 91.7 per cent in the tuberculous guinea pigs, and from 0 to 30 per cent in the nontuberculous pigs. This holds for all strengths except undiluted O. T. in the normal guinea pigs, with which the mortality was only 9.1 per cent, possibly because of the small number of animals in this group. The mortality in the higher strengths of tuberculin in the normal guinea pigs is indicative of a toxic effect exerted by the tuberculin. Were it not for the low value with the undiluted tuberculin the mortality might be said to be proportional to the strength of the tuberculin.

##### *Intracerebral Injections:*

Following the intraspinal inoculation of undiluted tuberculin, the animals would have a generalized tremor, sometimes jerking and at



times tonic and clonic convulsions. With the intracerebral injections there was produced, in addition, a tendency to rolling and, occasionally, circus movements. These symptoms were pronounced when straight tuberculin was used, present to a lesser extent or absent with the lower dilutions. The guinea pigs receiving straight tuberculin were evidently quite ill, while the others showed diminished signs of activity, usually in proportion to the strength of tuberculin given. The normal guinea pigs were also apparently less acutely affected immediately afterward.

By the intracerebral route tuberculin was administered in only 0.1 cubic centimeter amounts to 227 guinea pigs, of which 160 were tuberculous and 67 were nontuberculous.

The results in many ways parallel those of the intraspinal injections.

1. There was no fatality in the eleven normal guinea pigs on injection of Ringer's solution. Injection of Ringer's solution in the thirty-two sensitized animals, however, produced a mortality of six (18.6 per cent). The absence of deaths in the normals has the same significance as with the intraspinal injections, namely, that the intracerebral injection *per se* is probably not responsible for death. The higher mortality in the sensitized animals could be interpreted as meaning that:

(a) The procedure itself is more damaging than the intraspinal, and in an animal whose resistance is already lowered by tuberculosis, death ensues; or

(b) Ringer's solution is toxic to the brain of the tuberculous guinea pig.

The first appears more probable.

2. There is here an increasing mortality with increasing dosage from 7.6 to 80 per cent in the normal guinea pigs, with dilutions from 1:1000 to 1.00, and only slightly higher, from 22.5 to 88.8 per cent in the tuberculous guinea pigs, for the same dilutions.

3. The actual mortality of guinea pigs to intracerebral injection of almost every dilution was somewhat greater than that of the intraspinal series, regardless of the fact that the actual amount of tuberculin used was just half as great. This difference may be accounted for on the supposition that the traumatic reaction to the intracerebral injection is less well borne than the simple spinal puncture. Theoretically one may readily conceive that the cerebral edema resulting from the traumatic injury of brain puncture would, by compressing the medullary centers, be more likely to produce death than similar edema limited to the region of the lower spinal cord. This factor is particularly marked in the tuberculous animals, for in them even the injection of simple Ringer's solution was sufficient to cause the death of almost one-fifth.

#### THE GRYZEZ TEST

The Grysez test was performed eleven times by the injection of 0.5 cubic centimeter tuber-

culous spinal fluid intraspinal into previously infected guinea pigs.\*

In one case meningococcic spinal fluid was injected and the guinea pig died in twenty hours. In the other ten cases tuberculous spinal fluid (from cases proved by autopsy in eight instances and from clinical evidence in the other three) was injected and no fatality occurred within twenty-four to forty-eight hours. In one of the guinea pigs no tuberculosis was found at necropsy, but in the remaining nine, extensive typical tuberculous lesions were present.

Although the study of the Grysez test was not exhaustively carried out, the results appear so definite that they warrant comment. All ten guinea pigs inoculated intraspinal with tuberculous spinal fluid survived. The number of guinea pigs is small. The test was discontinued when such consistently negative results were obtained. By that time we were also in receipt of a letter from Dr. V. Grysez<sup>20</sup> to the effect that he had never published the data on that test, which had been cited in Calmette's book solely on the basis of an informal personal communication. Dr. Esmond R. Long of the University of Chicago, an authority on the chemistry of tuberculin, had previously written us<sup>21</sup> his belief that there was not enough protein in tuberculous spinal fluid to give an allergic reaction.

#### CONCLUSIONS

Although the mortality in both normal and tuberculous guinea pigs cannot be attributed solely to the tuberculin injections, the low mortality with Ringer's solution demonstrates that the operative procedure itself, although traumatizing, does not cause death. The injection of tuberculin, however, added to this trauma, is sufficient to lead to death in many instances. That tuberculin placed into the central nervous system without this trauma in the same dosage would produce similar but less marked results is probable.

The increased death rate among the tuberculous guinea pigs we are inclined to ascribe to the lowered resistance of tuberculous guinea pigs as compared with normals. The differences in mortality between tuberculous and nontuberculous guinea pigs does not strike us as being sufficiently great to necessitate the presence of an allergic factor.

That allergic sensitivity is not present in the nervous system of the guinea pig we cannot say. That such a response leading to death of the animal does not occur seems highly probable. Milder reactions as a result of allergy may, of course, occur. If so, they have passed unnoticed or may have contributed in part to the greater mortality of the tuberculous pigs. Certainly the reaction in

\* The spinal fluids were obtained from patients on the services of Drs. John E. McKillop and A. G. Bower and of Dr. Oscar Reiss at the Los Angeles County General Hospital, to whom we wish to express our thanks. We gratefully acknowledge also the help given by Dr. Newton Evans, chief pathologist, and by Mr. James Bolton in the laboratory.

the nervous system, if present, is not as sensitive as it is elsewhere in tuberculous allergy—much less, the *most* sensitive tissue reaction.\*

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## THE CERVIX AS A FACTOR IN HYSTERECTOMY\*

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PROBABLY no organ in the human body is subject to as much trauma, infection, and disease as the uterine cervix. When one considers the number of abrasions, lacerations, and contusions that go with an ordinary delivery, it is little wonder that the cervix becomes vulnerable and permits the invasions of its structures by pathogenic germs. In no place in the human body are precancerous conditions so prevalent.

#### HISTOLOGY OF THE CERVIX

From an economic standpoint the cervix is responsible for much inconvenience, suffering, misery, and great loss of time. From the standpoint of anatomy, histology, and pathology it offers an interesting study. In the short distance of a little over one inch are found four different types of epithelial cells. Covering the vaginal portion are found the squamous cells, and immediately adjacent, within the cervical canal, we find a mucous membrane of diversified racemose glands lined by high cylindric goblet-shaped cells. Whether or not these glands have any functions other than the secretion of mucus, is undetermined. At the internal os a modification of the membrane is evident, the glands becoming less arborescent with a decrease in height of the high cylindric epithelium. Cuboidal epithelium lines the simple tubular glands and the surface epithelium of the cervical canal is ciliated. While the cervical glands secrete mucus, the glands of the endometrium produce a thin secretion which is not true mucus. The unbroken cervical mucous membrane constitutes, with the exception of the gonococcus and tubercle bacillus, a powerful barrier against infection from pathogenic germs.

#### PROPER OBSTETRIC PRACTICE

You are all familiar with the picture of the bruised, lacerated cervix after delivery, with its broken blood vessels and lymphatics. Nothing but a high immunity index prevents the majority of women from having puerperal infection. At this time it is wise to counsel obstetricians that their responsibility does not end with the normal lying-in ten-day period. No woman should be released from the care of her obstetrical attendant until the normal tissue continuity of the cervix has been restored.

I am satisfied that if this procedure were carried out the number of postpartum precancerous lesions would diminish and the high mortality of one woman in every twenty-seven from cancer of the uterus would be greatly reduced.

As the matter now stands few women go through childbirth without developing postpartum disease of the cervix. Many of these infections come from apparently superficial erosions or

\* Chairman's address, Obstetrics and Gynecology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.



lacerations of the cervical mucosa. While the uterine cavity and cervical canal are normally sterile, the vaginal vault is never so. The secretions of the cervix are normally alkaline, while those of the vagina are acid.

It can readily be understood how quickly, under these conditions, infection takes place. Pathogenic bacteria readily penetrate beneath the torn barrier, with inoculation of the deeper structures. As a natural sequence of events the abraded surface is irritated by the acid secretions of the vagina with a consequent lowering of its local resistance and the formation of the so-called erosion. If the cervical laceration is deep and extends into the fornices, the spread of the infection is rapid, many times invading the appendages and the body of the uterus. The cervix becomes very much enlarged as the result of inflammatory hyperplasia. The bright red, apparently ulcerated area is not an ulcer in the true sense of the word; neither is it a granulating process as is sometimes supposed.

The reddened cervical mucosa is covered by a single layer of columnar epithelium, which, in an attempt to heal the damaged cervix, has grown downward from within the cervical canal, and its red ulcerated appearance is due to the thin covering of columnar cells. It is by this blending of the two types of epithelial cells that cysts are formed. This condition going on indefinitely, with no attempt made at cervical repair, furnishes a splendid medium for the gradual transition of the normal epithelial cell into that which is characteristic of malignant degeneration.

It is less than a hundred years since the origin of the cancer cell has been understood. While much has been written and said during this short period of time, the fact remains that the true and definite cause of the disease is unknown. Once the disease is established its cure is an uncertainty and modern science has done little in the way of discovering a cure for advanced cancer. The only established methods of cure depend upon early diagnosis of the disease along with such methods of prevention as will diminish its recurrence.

#### CANCER OF THE UTERUS

The fact that one woman out of twenty-seven dies from cancer of the uterus does not seem to have permeated the minds of the general practitioner and of the people. Once this fact strikes home in both classes, the prevalence of cancer of the uterus is going to diminish. A proper understanding of the predisposing causes, of cancer of the cervix should be in the mind of every attending obstetrician. With this thought in mind when making a delivery, no woman will be allowed to approach the meridian of her existence with a cervix that has been damaged in childbirth.

The part that irritation and inflammation play in the origin of cancer has always been to me a most significant and interesting biological study. This is especially true when we remember that cancer of the uterus is comparatively rare in the

woman who has never borne children or who has never had a traumatized or inflamed cervix. While it is true that cancer does occur in that type of cervix, it is extremely rare and has no special significance as to the origin of the disease.

I am satisfied in my own mind that inflammatory conditions in the cervix are the most common cause for the gradual transition of the normal epithelial cell into that of malignancy. The clinical evidences of this condition are so outstanding that one needs only to look to be convinced. There can be no question of the well established scientific fact that irritation and inflammation are important factors in the etiology of cancer. Just when the epithelial cell undergoes this transition is not known. There must be, however, a period when this change takes place. We all have seen the apparently malignant cervix, which, when a biopsy was made, showed no changes which could be definitely classed as malignant. This is the precancerous stage, and if properly recognized and treated would practically eliminate 75 per cent of cancers of the uterus. It is certainly true in the clinical picture of these patients where the condition is neither normal nor malignant. Just exactly how wide is the space between a malignant and nonmalignant condition is for science to discover. It requires no stretch of our clinical imagination for one to understand how the bruised, wounded, and lacerated cervix, which is constantly bathed in the acid secretion of the vagina, rapidly becomes inflamed. The length of time that it takes cancer to develop in this type of cervix depends to a great extent upon the natural inborn immunity of the individual.

We must realize that the chemical reaction of the vagina is acid and that the field is contaminated, while that of the interior of the uterus is sterile and alkaline. The vagina always, of course, contains large numbers of pathogenic bacteria. The epithelial cells lining the cervix normally live in a sterile and alkaline medium. When the integrity of the cervical mucosa is broken with eversion of the deeper structures into the vagina, a favorable condition is produced for the development of a precancerous lesion. Under these conditions infection rapidly ensues, permeates the deeper tissues of the cervix, and generally extends into the body of the uterus, producing an endometritis with a mucopurulent discharge which constantly drains over the broken and injured mucosa, thereby producing another source of irritation and infection. Coincident with this, the vaginal and cervical epithelium start to fill in the wound with the result that there is displacement of squamous cells into the deeper structures of the cervix. It is this displacement of epithelium that produces the microscopic picture so often termed "suspicious of malignancy."

#### PRECANCEROUS LESIONS OF THE CERVIX

In an excellent paper on precancerous lesions of the cervix, Culbertson<sup>1</sup> states that he has photomicrographs exhibiting the plugging of distended gland spaces by squamous epithelial cells, extensive and massive round cell infiltration with



disintegration on the surface, and describes as malignant, sections showing diffuse thickening of the surface epithelium with short irregular downgrowths of the basal layer.

Along these lines, the almost total absence of malignancy in the virgin cervix (less than three per cent) is an astounding argument in support of the theory that cancer does not occur in fields not prepared by irritations and infections.

Philip J. Reel<sup>2</sup> states: "For all practical purposes the frequency of cancer in the virgin is negligible. Here, of course, the cervix has not been tormented by the presence of old lacerations, scar tissue formation, or, as in some instances, even low-grade infection."

C. H. Mayo,<sup>3</sup> in the *Journal of the Canadian Medical Association*, states the situation very aptly when he says, "The part played by chronic irritation in the development of cancer is positive and definite to a degree. The danger of cancer is increased by all irritations and traumatism which demand a continuous cell repair, and it is in proportion to that demand. Ultimately exhaustion of cell control bodies occurs, modified by age, limitations, and chemical surroundings. Such areas offer an increasing opportunity for the half of a dividing cell to revert to the unicellular type of life and to become parasitic and cancerous."

As the best means to combat the onset of cancer, Findley<sup>4</sup> lays great stress upon the treatment of "precancerous lesions," erosions and eversions of the cervix and endometritis. Findley further states, "While recognizing the occurrence of epidermization as a benign lesion, I would regard extensive changes of this sort as the precursor of cancer. In all cases where great irregularity in form and size exists, a typical mitosis and hyperchromatism establish the diagnosis of malignancy."

This brings us back to the established fact that irritation is a constant factor in the production of the precancer field and should be accepted and recognized as such. Childbirth, with its concomitant injured and lacerated cervix followed by infection and inflammation, establishes beyond controversy its right to be named as the greatest single factor in the causation of cancer of the cervix. Frankl's statistics show that 97 per cent of all cancers of the cervix occur in women who have borne children. The number of pregnancies and labors plays a secondary rôle. The fact that a woman has had one child predisposes her to cancer of the cervix. That predisposition is almost certainly due to injury of the cervix. If that injury is followed by chronic infection and catarrh, as is so frequently the case after deep lacerations, the predisposition is increased. We know that cervical catarrh occurs in nulliparous women as the result of infection and even in virgins in whom infection can be excluded, and these may be the nulliparae who develop cancer.

Blair Bell<sup>5</sup> succinctly stated the situation when he said: "Malignant neoplasia arise from cells of impaired functions, 'unhealthy cells,' and that whatever causal factor, whether metabolic or ex-

trinsic, can permanently impair a cell without killing it may be regarded as a predisposing cause or 'exciting factor' of malignant development."

B. L. Moench<sup>6</sup> in a very interesting and scientific discussion of cervicitis, erosion, and lacerations of the cervix uteri, deplores the term "erosion" and says this condition should be designated as cervicitis, and the term "erosion" and endocervicitis be dropped. He further states that the unstable balance existing between the columnar and squamous cell epithelium due to embryological changes has a marked influence in the causation of cervical cancer.

#### THE NULLIPAROUS CERVIX

The statement is often made that the nulliparous cervix is sometimes affected with a reddened patch of erosion. This is unquestionably true and is probably due to an anomalous growth of mucous membrane within the cervical canal that fails to recede during infancy and extends downward upon the vaginal portion. This type of congenital cervical erosion is comparatively rare and is of very little importance as a precancerous condition when compared to the great group of infected and inflammatory lesions so often seen in the cervix of the multiparous woman. It is true that all precancerous conditions are not and do not develop malignancies. This being the case, how are we to differentiate between the two types? We cannot make a biopsy on all suspected malignant cervixes. Even if we did, it would not answer the final question, is or is not this case malignant? Only by a careful case history and by a manual and visual vaginal examination can we from the symptomatology get a line on a correct diagnosis. Pain is a very uncommon occurrence. This is especially true if there are no complications involving ovaries and tubes. Abnormal bleeding and discharge present the most common outward manifestations of tissue changes in the diseased cervix. There is nothing typical about the bleeding and discharge because they vary greatly in amount and character. They are such common events in the life of the average multiparous woman that she makes no mention of them. This holds good in irregular bleeding. It is a common belief among women that all vaginal bleeding is menstruation. The average woman has no idea that vaginal bleeding can come from any cause other than menstruation. If this one fact that all vaginal bleeding is not menstruation were clear in the mind of the laity, countless lives would be saved. Practically all cervical lesions produce a discharge. A smaller number accompany this discharge with bleeding. Any woman who complains of both a discharge and unusual bleeding should be suspected of abnormal tissue changes either in the body of the uterus or in its cervix. Vaginal discharge and irregular bleeding always mean disease. Hemorrhage in the nonpregnant over forty is always symptomatic of malignancy and should be so considered until proved otherwise. It is a well established clinical fact that the majority of hemorrhages occurring after the menopause are due to malignancy.



While it is possible to recognize cervical pathology by sight and touch, the ordinary vaginal examination is not made in the necessary thorough and searching manner. With good light and perfect exposure the trained clinician can detect lesions that would be considered suspicious.

Our present knowledge of cancer leads to the belief that more cancer can be prevented than cured. With all of our highly developed laboratory technique pertaining to the recognition of the normal epithelial cell gone wild, the fact remains that no one knows exactly when this wild transition takes place. Early recognition of precancerous lesions will prevent the occurrence of more cases of cancer than surgery and radiology combined can cure.

#### THE CERVIX IN THE OPERATION OF HYSTERECTOMY

The cervix, as a factor in hysterectomy, whether supracervical or complete, has never been given proper consideration in the operation of hysterectomy. Whether the operation be made for malignant or nonmalignant disease, the cervix becomes a most important factor in the future welfare of the patient. The greatest source of uterine cancer lies in the cervix, and a proper understanding of the condition of the cervix should be ascertained before an operation is made. I venture to say that 90 per cent of all cancer developing in the cervix after supracervical amputation could be prevented. It is not an uncommon occurrence to find upon examination after partial hysterectomy that the cervix is badly diseased and should have been treated before or removed at time of operation. This condition is not uncommon; in fact, it is surprising how often a supracervical amputation is made for a few innocent fibroids, and a badly diseased and precancerous cervix allowed to remain.

The future welfare of the patient for the next five or six years, as far as the fibroids are concerned, would be comparatively safe. The future welfare of the same patient is in the balance as long as the diseased cervix hangs *in situ*. The treatment of the diseased cervix has received much attention from gynecologists. With the advent of diathermy, electrocoagulation, the cautery, and the various types of Sturmdorf operations, there need be no reason why a potentially malignant field in the cervix should not be cleared up before hysterectomy is made; nor is there any good reason why, when a supracervical amputation is made, that the mucosa lining the cervical canal should not be destroyed with the actual cautery before closing in the cervical stump.

It is not within the scope of this paper to discuss the various methods of treatment for precancerous lesions of the cervix. A very interesting and instructive session could be held upon that subject alone. In considering the cervix as a factor in hysterectomy, we have tried to discuss it from that standpoint. In doing so, one could not do the subject justice without remembering the stump left after supracervical amputations.

Much has been said and written about the relative merits of subtotal and complete hysterectomy. There is much to be said in favor of both procedures. That the operation of supracervical amputation has a definite place in uterine surgery is an accepted fact. There can be no objection to leaving a perfectly normal and healthy cervix. On the other hand, the badly injured and diseased cervix is often more of a pathologic lesion than conditions above that warrant an operation. To amputate through the cervix and leave a lacerated, infected, "eroded" precancerous lesion is the height of surgical absurdity.

Cancer does occur in the cervical stump after subtotal hysterectomy. The exact percentage is problematical. Hochman<sup>7</sup> reviewed the records of 1114 cases, operated on from 1918 to 1922, where supracervical amputation had been done and found, up to 1926, that only three cases had developed carcinoma. This represents a low percentage of 0.27. Sharples<sup>8</sup> states the occurrence of carcinoma is about two per cent. Shaw<sup>9</sup> reported he had seen three cases of carcinoma of the cervical stump, but favored the operation of supracervical amputation in all nulliparous women and in the multiparous uterus where the cervix does not show evidence of lacerations and inflammation. When the cervix is torn or is the seat of chronic cervicitis, he prefers to do total hysterectomy. Polak<sup>10</sup> believes that subtotal hysterectomy should only be performed when the cervix is free of injury or disease in nulliparous women. He quotes the combined statistics of Schottlander, Herbert Spencer, and Noble, covering nine hundred cases in which the cervix was examined after total hysterectomy and in which malignancy was unrecognized clinically, but found in two per cent of the patients through the laboratory examination.

These growths if left behind would, in all probability, have developed in later years into fatal malignancy. Unquestionably the incidence of cancer in the cervical stump depends upon whether the woman has borne children and if so what condition the cervix is in at time of operation. The surgeon who clears up all lacerations, infections, and erosions before operation is going to have a far lower percentage of postoperative malignant cervical stumps than the man who leaves potentially malignant cervixes.

Personally, I agree with Corscaden<sup>11</sup> that "prophylactic removal of the cervix in connection with hysterectomy should be done for cause and not as a surgical routine. If the cervix be so badly diseased that cure by preoperative treatment or surgery is impossible, it should be removed; but if it is not, it should be treated with the consideration and respect we give all normal tissue."

The statement is sometimes made that a cervical stump is more susceptible to cancer than the normal cervix. From the clinical and statistical standpoint this is not true. If the cervix is not diseased and the soil prepared by irritation and inflammation, it is no more subject to malignant disease than any other part of the body. That carcinoma does occur in a certain percentage of

retained cervical stumps is an established fact. I am satisfied, however, that it does not occur more frequently than in women who have not been subjected to operation.

I have tried to make plain the significance of the cervix as a factor in hysterectomy. In the selection of a surgical procedure where hysterectomy is indicated, the condition of the cervix is the answer. If its condition is beyond therapeutic cure, then its total removal, with that of other adjacent pathologic tissue, is necessary. I do not sanction its removal as a surgical routine. Where just cause exists its removal is imperative.

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### EARLY PREGNANCY—A HORMONE TEST FOR ITS DIAGNOSIS\*

#### UTILIZATION OF RABBITS FOR TEST

##### A PRELIMINARY REPORT

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DISCUSSION by D. Armstrong Taylor, M. D., San Francisco; R. Glenn Craig, M. D., San Francisco.

#### INTRODUCTION

TO the rapidly accumulating corroboratory evidence on the Aschheim-Zondek<sup>1</sup> test as performed on rabbits after the method of Friedman,<sup>3</sup> we here submit a report on the results in 150 cases. After the publication of Friedman's<sup>3</sup> paper in the *American Journal of Physiology* in 1929, and also that of Schneider<sup>4</sup> in January

1931, suggesting the use of the rabbit in the Aschheim-Zondek test, we began our series, and having followed all but a very few cases through to a point where a definite diagnosis of pregnancy was possible, or where it could be ruled out, we are now prepared to submit our results. At this time many articles on the same subject are beginning to appear, but each paper is based on such a small series of cases that the total number of all reports falls far behind those which have appeared in support of the original Aschheim-Zondek test on immature white mice. Therefore, we present our series of 150 cases, with a few of our own practical suggestions, as further evidence of the accuracy and reliability of a test whose practical advantages are placing it ahead of the experiment as performed on white mice or rats. We hope that this evidence, plus that which we intend to offer in further experiments, will aid in the establishment of this test as the standard method for the hormone diagnosis of early pregnancy. These 150 cases are the first of our series; we have done almost 300 tests to date, but, as confirmations take time, we cannot at present report more. We hope to report on over 500 before the first of the year.

#### ADVANTAGES OF RABBITS

The advantages of using rabbits<sup>†</sup> are manifold, and there are practically no disadvantages. Large breeding stocks of white mice have to be maintained to furnish immature females of the proper age. It is an expensive, disagreeable, and precarious proposition. Mature female rabbits are purchased at any pet shop or poultry house at a reasonable figure. They are maintained in isolation for from fifteen to twenty days to make certain that the animal is nonpregnant, and to allow for the disappearance of old corpora hemorrhagica.<sup>6</sup> The problem of providing a suitable animal for the test is infinitely more simple in the case of the rabbit.

In the first part of our series we employed immature rabbits. However, since ovulation occurs only after copulation in the rabbit, the ovary of the mature nonpregnant rabbit which has been in isolation for a period of time sufficient to allow for the disappearance of the old corpora hemorrhagica, is just as satisfactory for observation as that of the virgin, immature rabbit.<sup>2</sup> Results are observed grossly, routine microscopic study being unnecessary, since corpora hemorrhagica are large and well defined. Results in our series were checked by microscopic sections for the purposes of experiment, but it is not at all necessary in routine clinical work. It is of immense aid to rule out the necessity of making microscopic sections on every case, from the point of view both of time and of expense.

A few minor difficulties were encountered. In the younger rabbits we occasionally made an error in determining the sex of the animal, since the external genitalia do not vary greatly in the two sexes. With a little experience, however, this

\* From the Sugarman Laboratory.

\* Read before the San Francisco County Medical Society, September 1, 1931.

† Editor's Note.—See article by E. Novak, *Journal of the American Medical Association*, June 27, 1931, p. 2175.



TABLE 1.—*Showing Results of Tests*

|                                        | Positive | Negative | Doubtful | Male | Dead | Summary |
|----------------------------------------|----------|----------|----------|------|------|---------|
| Number of results.....                 | 67       | 60       | 8        | 11   | 4    | 150     |
| Number clinically confirmed .....      | 13       | 54       | ....     | .... | .... | 114     |
| Number of histories not obtained ..... | 4        | 3        | ....     | .... | .... | 7       |
| Contradictions .....                   | ....     | 3        | ....     | .... | .... | 3       |
| Per cent error.....                    | ....     | ....     | ....     | .... | .... | 2.5 %   |

error is not often made. A few died in shock at the time of injection, although the urine was clear. We found that warming the urine just before injection reduced the mortality rate.

ARMAMENTARIUM

The test, in its simplicity and high degree of accuracy, should be of vast assistance, particularly to the small laboratory, and to the physicians in isolated localities. The apparatus required is almost primitive—a rabbit, a flask, a piece of filter paper and a funnel, a syringe and a needle. It is inexpensive, rapid (we allow the rabbit to remain alive for forty-eight hours), clear-cut in result, and dependable.

TECHNIQUE

Up to the present time 150 tests have been performed. In the first twenty-eight cases we employed the following technique:

A first morning specimen of urine was obtained and filtered. Seven cubic centimeters were injected into the marginal vein of the ear of a three months' old female rabbit. Twenty-four hours later the rabbit was killed and the ovaries examined for corpora hemorrhagica.

For the remaining 122 cases we made certain changes as follows:

First morning samples of urine were obtained and placed on ice for at least an hour to allow any precipitate to form. The urine was then filtered and placed in an incubator at 37.5 degrees centigrade to warm. Seven cubic centimeters were injected into the vein of a mature non-pregnant rabbit which had been in isolation for from fifteen to twenty days. Results were read in forty-eight hours after injection.

We consider the latter technique to be more satisfactory. In the first place, warming the urine reduces the mortality rate of the rabbits. Second, there is a danger of obtaining falsely negative results with immature rabbits if the rabbit is too young. The use of mature rabbits obviates this difficulty. Third, the 48-hour test allows more time for the development of the corpora hemorrhagica, and thereby reduces the number of false negative results.

In reading the results, we found three possible interpretations: (1) Positive, when there were present the large, fresh, bulging corpora hemorrhagica. (2) Negative, when the ovaries were small, flat, and showed no hemorrhagic spots. Enlarged Graafian follicles are not to be confused

with the positive findings. (3) Doubtful, when small, flat hemorrhagic spots are seen. These are always to be repeated, like the uncertain results of any other scientific experiment.

In only two rabbits did we note the formation grossly of corpora lutea as well as corpora hemorrhagica, although microscopic sections showed lutein tissue in many of the latter.

Although this test is a macroscopic one (this being one of its most attractive features), we sectioned a sufficient number of ovaries to enable us to confirm the microscopic features. Sections of ovaries considered positive show corpora hemorrhagica with beginning luteinization. The longer the time after the injection the more luteinization appears.

Rheinhardt and Scott <sup>5</sup> say that no luteinization appears before the forty-eighth hour, but we have found that it appears after twenty-four hours in slight degree. The interstitial glands may simulate corpora lutea, so this point must be borne in mind. In all cases the sections verified gross appearance, and in no case were sections necessary to determine the outcome.

The greater number of cases came through the courtesy of the obstetrical clinic at the University of California. The balance were sent to the laboratory by various physicians in San Francisco, chiefly from among the obstetricians. We have been able to obtain histories in nearly all of the cases up to the point where a definite clinical diagnosis was established.

RESULTS

The chart (Table 1) is self-explanatory in regard to the number of tests performed and the results obtained. The four animals which we lost died in shock at the time of injection. Of the eleven male rabbits used, three were used by mistake, and the remaining eight were tested with four known negative urines, and four known positive urines, respectively, to see if any change could be observed in the testes of the rabbits. There was no evidence of such change in this small series. The cases were not studied microscopically, however, and it is possible that small differences may have been present. The fact that such changes if they were present, were too slight to be observed grossly, immediately rules out the use of male rabbits, in the face of the immense advantage of the reading of the tests on female rabbits with the naked eye.

Included in our list of negatives were three male urines, three known negative female urines, and one on a rabbit which had received no injection. In all seven cases we obtained clear-cut negative results.

We received four postpartum cases. Three were taken twelve hours after delivery and all were positive in the rabbit. One was taken forty-six hours after delivery and gave a rabbit test which was interpreted as doubtful. In addition, with a urine from the case of an ectopic pregnancy obtained just before the operation performed to remove the fetus, we obtained a positive result.

An analysis of the results which we classed as doubtful show four cases which later gave positive results, two which proved to be clinically negative, and two on which we were unable to obtain any further information. We have, therefore, reached the conclusion that "doubtfuls" are to be repeated in every case, since our rechecks on these cases yielded a variety of results.

Our percentage error is entirely on the negative side and includes those cases which were tested in from one and one-half months' to four months' pregnancy; that is, cases where a positive result was to be expected. Following is a brief review of these three cases:

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| (1) Widmore          |                      |                      |
| 2-11-31              | 4 months' pregnancy  | Negative rabbit test |
| 2-27-31              | 4½ months' pregnancy | Doubtful rabbit test |
| 3-26-31              | 5½ months' pregnancy | Positive rabbit test |
| (2) C. B.            |                      |                      |
| 1-28-31              | 4 weeks' amenorrhea  | Negative rabbit test |
| 3-9-31               | 2½ months' pregnancy | Positive rabbit test |
| (3) Case 135         |                      |                      |
| 1½ months' pregnancy |                      | Negative rabbit test |

Unfortunately the third case mentioned here was aborted, and we were not able to follow it to a point where a positive result was obtained, but it will be noted that in the other two instances positive results were eventually given. There may be some explanation for this fact in individual variation. Further experiments in the refinement of technique are necessary in order to reduce the percentage of error in the cases giving negative results so late in the term.

In the series are two cases which gave negative results in from two to three weeks after the menstrual period was due. They became positive very shortly after, as shown by this summary:

|              |                     |                      |
|--------------|---------------------|----------------------|
| (1) E. D.    |                     |                      |
| 1-22-31      | 2 weeks' amenorrhea | Negative rabbit test |
| 1-28-31      | 3 weeks' amenorrhea | Positive rabbit test |
| (2) Case 146 |                     |                      |
| 5-20-31      | 2 weeks' amenorrhea | Negative rabbit test |

In a later series this test was repeated at three weeks past the period, and was negative. At six weeks it gave a positive result.

If these two cases are to be included in the list of contradictions, it would increase the percentage of error to 4.3 per cent. However, since most cases do not yield positive results any earlier than these, we feel justified in excluding them from our list of contradictions.

We have, on the other hand, obtained positive results at remarkably early periods of pregnancy:

1. Case 86 gave a positive result three days after a missed period.
2. Case 52 gave a positive result three days before the period was due, or between fourteen and twenty-one days after conception.

There is, as we have stated above, a certain amount of individual variation, depending, possibly, on the amount of hormone secreted in the urine, and in the earliest time that it begins to appear after conception in sufficient amounts to produce the reaction in the rabbit.

No falsely positive results were obtained. A very few gave the positive result at a relatively late period in the pregnancy. The highly specific results and the low percentage of error place the test in the first rank of laboratory tests.

CONCLUSIONS

1. The hormone test as performed on rabbits is accurate to a high degree.
2. The results are specific, giving no false positive reactions, and yielding only a very few negative results where a positive might have been expected.
3. The test is extremely simple to perform, and is thoroughly dependable as long as the proper attention is given to the selection and care of the test animal.
4. The use of the rabbit is highly desirable for the small laboratory or the physician in an isolated locality.
5. We urge the compiling of further data to aid in establishing this as the standard hormone test for pregnancy.\*

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DISCUSSION

D. ARMSTRONG TAYLOR, M. D. (490 Post Street, San Francisco).—To make a diagnosis of early pregnancy before the advent of laboratory tests was in many cases impossible, and even when there were some presumptive and probable signs present it was inadvisable to make a diagnosis of pregnancy for the following reasons: First, that the patient in some instances made false statements. Second, that cessation of the menses in a patient with a history of an irregular menstruation was not a reliable sign. Third,

\* We wish to thank the Obstetrical Department of the University of California and the other members of the medical profession who so kindly coöperated with us in furnishing suitable material and in giving us the necessary case histories to corroborate our findings. We are also indebted to the University of California for the preparation of our microscopic sections.



that a woman near the menopause many times became pregnant without apparently giving any indication of pregnancy, believing that the cessation of menses was due to the menopause. Without positive signs, which are evident only from the fourth to the fifth month, a physician hesitated to make a diagnosis.

The advent of the Aschheim-Zondek test was one of the greatest contributions to the obstetrical art since prenatal care. It proved, in a small series of cases, that an early diagnosis of pregnancy could be made in not less than one hundred hours. Sterile technique, a microscopical examination, and the raising and care of a large number of mice or rats were the only requisites for accurate diagnosis of early pregnancy.

Eberson and Silverberg later reduced the time for the interpretation of the test to forty-eight hours by separating the ovarian hormones and concentrating the pituitary hormones.

These methods are, however, impractical as they require laboratory technique and a microscopical examination.

Friedman, in 1929, developed the rabbit test and with a small series proved that his method was equally as accurate as the Aschheim-Zondek method.

Doctor Dorn and his associates, with a much larger series, have proved conclusively that the Friedman test is accurate and simple to perform. No sterile technique is necessary and the test can be made in any office.

The great advantage of the rabbit test will be the early diagnosis of pregnancy in those patients whose welfare is at stake and in whom the continuation of pregnancy would be inadvisable. With further study, there is no doubt that the rabbit test will be the standard test for pregnancy in the future.

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R. GLENN CRAIG, M. D. (490 Post Street, San Francisco).—Since the first announcement of Aschheim and Zondek, reporting a high percentage of accuracy in the test for pregnancy which bears their name, numerous reports have appeared in the literature confirming their statistics. These have usually shown the test to be 95 per cent, or more, accurate, although Mazer and Hoffman report only 75 per cent accuracy. Attempts at modification of the original technique of Aschheim-Zondek have not given as good a result.

One objection to this test has been the four or five-day interval which must elapse before the results are known. Recently Eberson and Silverberg have proposed a quicker method, requiring thirty-six to forty-eight hours with equally good results.

Another objection to the use of immature mice or rats is the large breeding stock which must be kept on hand to insure a sufficient supply of immature animals. Since the rabbit has no regular recurring sexual cycle, as true ovulation only occurs after coitus (one of the few examples of economy in nature), the use of this animal would obviate this objection if the results were equally satisfactory. The results reported here speak for the accuracy, and are in agreement with other figures available when the rabbit has been used as the experimental animal. "Time will tell" which is most desirable.

Of course we must not forget that, to be of value, the report should include, or preferably be limited to, patients in whom the diagnosis of pregnancy is not easily made by digital examination. This would include both the early pregnancies, which should be less than two weeks after a missed menstrual period, and the abnormal pregnancies, such as an extra-uterine pregnancy, a pregnancy associated with myomati uteri, or the death of the fetus. Any effort to extend the accuracy of medical diagnosis, such as this, is to be commended.

## CINCHOPHEN POISONING\*

### REPORT OF CASE

By EMIL BOGEN, M. D.  
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THE sad results of clinical disaster have furnished convincing evidence of the toxicity of many compounds which had been hailed as safe and harmless after the most exacting laboratory investigation. Cinchophen, a phenyl quinolin carboxylic acid, was produced in the course of researches in synthetic organic chemistry less than a half century ago.<sup>1</sup> Chemically related to the quinolin derivatives, it possesses pharmacological similarities to the salicylates.<sup>2</sup> Its clinical value was suggested by the studies of its effect on uric acid excretion in 1908.<sup>3</sup> Since then its use has increased rapidly all over the world. It was early accepted by the Council on Pharmacy of the American Medical Association and incorporated in the Pharmacopeia of the United States.<sup>4</sup>

Elaborate pharmacological investigations by many workers, both in this country and abroad, consistently showed an absence of harmful effects from doses far exceeding any therapeutic expectations.<sup>5</sup> Most of the textbooks in use throughout the United States still assert that these preparations are practically devoid of danger.<sup>6</sup> Only in the last edition of New and Nonofficial Remedies is any mention made of possible fatalities from its use.<sup>7</sup> Clinical testimonials to its safety were also abundant.<sup>8</sup> Minor skin reactions were occasionally reported, but they were usually considered inconsequential rarities.<sup>9</sup>

Only during the past five years, it seems, have any deaths from this cause been recognized, but the continuously increasing reports of these fatalities leave little doubt as to their real existence and importance.<sup>10</sup> The actual number of persons who have used cinchophen derivatives is undoubtedly large, but when it is remembered that the usual indications for its use are often painful, but rarely fatal conditions in themselves, the incidence of fatal poisoning may not be disregarded. The following case report illustrates this fact.

### REPORT OF CASE

A white woman, age nineteen, was admitted to the Olive View Sanatorium of Los Angeles County on December 17, 1930, and diagnosed as having "incipient tuberculosis." Her father and one sister had died of tuberculosis. She had always been a delicate child, had been severely burned at the age of one year, and again extensively burned over the entire right side and back when fifteen years of age. She had had measles, whooping-cough, chorea, chicken-pox and mumps, and her tonsils had been operated on twice under ether anesthesia. She had had typhoid fever at the age of six, and again four years later. Her appendix had been removed one year ago. She complained of anorexia, constipation, lassitude and undue fatigue, slight loss of weight, occasional pain in the chest, swelling of the left ankle, and slight elevation of temperature.

Physical examination revealed no signs of pulmonary pathology. There was a fluctuant swelling posterior to the left external malleolus, painful on walk-

\* Editor's Note.—For brief statement concerning "Toxicity of Cinchophen and Safety of Neocinchophen," see *Journal A. M. A.*, August 8, 1931, page 409. Also page 307, in this issue of California and Western Medicine.



ing, but not reddened or tender. There was a vaginal discharge and venereal warts at the vulva, but smear showed no Gram-negative diplococci. Wassermann test was negative. The white blood count was 7200; hemoglobin, 75 per cent; urine negative for albumin or pus; and sputum absent except on one occasion, when it was negative for acid-fast bacilli. The vital capacity was 2700 cubic centimeters. Sedimentation rate was only moderately accelerated, and temperature was normal during nearly all of her sanatorium stay. The x-ray showed nothing characteristic for pulmonary tuberculosis.

In addition to general measures, tonics, sedatives and laxatives, and local treatment to the vulvar condylomata and to the ankle, cinchophen, grains seven and one-half, three times a day, was started February 28, 1931, and continued until April 7, a total of about fifty-five grams. During this time the pain and swelling in the ankle abated. On April 6, however, the patient complained of pain on urinating, and nausea, and on the following day began to vomit. A dull intermittent pain was felt in the right iliac region, worse after eating, and partly relieved by hot applications. The urine had been dark red in color for a month, the stools were hard and occasionally appeared clay-colored. A yellowish discoloration was noted first in the eyes, later increased, and on April 12 jaundice of the skin was reported. The jaundice, nausea, and abdominal pain persisted and increased. The urine tests were positive for bile pigments and bile salts, and the Van den Bergh test in the blood serum was positive direct, with a reading of fifteen milligrams.

Cinchophen poisoning was suspected, and active measures taken to treat it, including intravenous injections of glucose and insulin. On April 19 the patient developed severe right-sided abdominal pain with nausea and vomiting, and a white blood count of 20,000 which later rose to 39,000. An exploratory laparotomy, performed under spinal anesthesia, revealed a distended stomach, but otherwise a normal abdomen. The patient became progressively weaker, labial herpes, hiccough, choreiform movements and delirium appeared, and death followed on April 24.

**Necropsy.**—At necropsy a small calcified old tuberculous focus was found in the right lung, with no evidence of activity. In the lower parts of both lungs were areas of early patchy consolidation, apparently hypostatic. The stomach was greatly distended. The liver was small, weighing 1200 grams, homogeneous in appearance, with normal liver markings indistinct. Sections showed areas of necrosis most marked in the neighborhood of the central veins, with relative increase in the connective tissue stroma of the liver. The gall-bladder was small and showed no evidence of obstruction or infection. The spleen weighed 1400 grams and the Malpighian corpuscles were somewhat prominent. The small intestine, particularly in the lower ileum, contained many enlarged congested lymphoid follicles. The kidneys showed slight cloudy swelling. The ovaries contained multiple bloody cysts.

#### PATHOLOGY

The pathological picture produced by cinchophen poisoning is quite definite and consistent. In practically every instance the liver is the main organ involved. A toxic necrosis of the liver cells, followed occasionally by evidence of cirrhosis or fibrotic changes, with little or no sign of inflammatory reaction, is the usual finding. Symptoms of biliary obstruction similar to those of acute catarrhal jaundice develop, only occasionally accompanied by those of portal obstruction with ascites and edema.

The pathogenesis of cinchophen poisoning is not so readily ascertained. That an overdose of cinchophen might produce liver damage appears plausible in view of the high choleric effect of therapeutic doses,<sup>11</sup> the impaired liver function

tests reported following a week after the initial injection of the drug,<sup>12</sup> and the more recent work on liver damage in animals produced by overdosage of the drug.<sup>13</sup> On the other hand, the fact that some patients succumb to such trivial amounts while others appear to tolerate enormous doses suggests the importance of some individual idiosyncrasy or predisposition.

#### COMMENT ON LITERATURE

The eighty instances of cinchophen poisoning so far reported<sup>14</sup> show a marked preponderance of the female sex and the older years of life. Previous liver damage, as from typhoid fever, hepatitis or cholecystitis and other conditions, have been frequently noted. The amounts taken, and the period of administration vary widely, and bear no constant relationship to the fatal outcome, but the intravenous administration seems to be unduly unfortunate. The positive skin tests reported in some susceptible individuals, and the occurrence of symptoms on use after a period of absence from the drug in others suggests an allergic interpretation, but the clinical and pathological findings are opposed to this explanation.

Cinchophen and its derivatives are marketed under more than two dozen different names. Poisonings have been already reported from cinchophen, atophan, phenylcinchoninic acid, diiodoatophan, biloptin, atophanyl, oxyl iodid, atquinol, atochinol, leucotropin, moniodocinchophen and from "Weldona," "Van Ards," "Cass," and "Harrell's" rheumatism cures. No instances have been shown to be due, as yet, to the use of neocinchophen or "tolysin," the methyl ethyl ester of cinchophen. Whether it is an exception, and harmless, is uncertain.

Despite the efficacy of cinchophen and its derivatives in controlling pain in a large number of cases, its toxicity renders it far too dangerous to use in clinical conditions that are otherwise associated with almost no fatalities. Neither small dose, intermittent administration, nor early discontinuance provides any security. The use of these drugs is fraught with definite danger of fatal consequences in a proportion too high to be ignored. The physician is not justified in subjecting the patient to so great a risk. "Primum nil nocere."

Olive View Sanatorium.

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## ANESTHESIA—A MEDICAL SPECIALTY\*

By WILLIAM W. HUTCHINSON, M. D.  
*Los Angeles*

OCTOBER 16, 1846, when Dr. W. T. G. Morton gave the first public demonstration of ether anesthesia at the Massachusetts General Hospital, was a history making day for anesthesia. This event also made possible the unprecedented advance of surgery of the past fifty years, for without anesthesia, surgery would still be only a last resort measure and any marked advance could not have been made.

Even as early as 1846, without the means of rapid communication we have today, the news of this event rapidly spread around the world and there was a clamor for ether everywhere, and, there being no trained anesthetists or teachers, the surgeons early established a dangerous precedent by allowing anyone to handle the agent. I wish to take a few minutes of your time to review the rise of the anesthetist—not anesthesia.

If the detail men of those old days were anything like those of today, I can imagine one entering Doctor Jones' office, telling him of the simplicity of the application of the drug—how anyone could use it with safety (as they now do to us with the newer anesthetic preparations)—just drop it on a towel or handkerchief and the patient would go to sleep and the surgeon could do his work at leisure with no thought of anything but setting a fracture, doing the delivery, operating, or what not.

Under such conditions it is not surprising that the administration of the anesthetic was relegated to the nurse, or relative, or someone off the street, as the case might be. Soon charlatans were procuring supplies of ether and traveling over the countryside picking up jobs as they could. This naturally was followed by a high mortality and had it not been that anesthesia was absolutely essential to surgical advance, I doubt if anesthesia could have withstood the disrepute which this early practice placed upon the use of ether. But even from the date of its discovery the surgeon realized that it had become an essential factor in his work.

Because of the high mortality and morbidity, physicians of the time began to take more care and precautions. They realized the dangers of anesthesia and took a definite interest in overcoming these dangers, studying and training themselves in the administration of anesthetic agents. The work of these men is responsible for the specialty of anesthesia of today.

Advance in the specialty of anesthesia was at first slow. The formation of such organizations as the Associated Anesthetists of the United States and Canada, with its regional branches; The International Anesthetic Research Society, and local associations for the advancement of anesthesia by physicians gave great results.

Research by the medical profession has produced new anesthetic agents, new methods and newer and safer apparatus. All these advances have so broadened the scope of anesthesia that it is an alluring field of endeavor for any physician.

The specialty has been somewhat retarded by the attitude assumed by most of our medical schools, and by that of the American Medical Association. Sufficient stress has not been given this important subject. Why should not all medical schools impress the medical student with the importance of anesthesia so that a greater number of physicians will take up the subject in a serious way as a life work, thus making future advance possible. The second retarding factor is the unwillingness of the American Medical Association to grant anesthesia a section. This is the only national English speaking medical organization that has not recognized anesthesia by granting it a section and I hope to see the day when the American Medical Association will grant the recognition this specialty in medicine so justly deserves.

Lay persons administering anesthetics, regardless of experience, are still technicians and can never be more, for their fundamental training does not fit them for more. Under these conditions the surgeon has no one with whom he can divide responsibility. He must interrupt his own work to keep himself acquainted with the patient's condition and be ready to order any stimulants or medication indicated. This is manifestly unfair to both patient and surgeon. Under lay anesthesia when an emergency arises during surgery, when the patient is in poor condition—just at a time when the surgeon should have his mind and hands free to put his full attention and energy into his work—he must stop, acquaint himself with the patient's condition (which he is not in a position to determine without examination) and order the indicated remedy, with resultant loss of time.

Anesthesia is definitely the practice of medicine. Some deny this and state that the technician has an equal right to administer an anesthetic as to give a hypodermic. With this I disagree. An emergency arises, stimulation is *ordered* (prescribed) by the anesthetist and given. In that act anyone but a licensed physician has violated the California Medical Practice Act, for only a licensed physician can lawfully prescribe under this Act. If the anesthetist is not able to so prescribe by being a licensed physician, the surgeon must be disturbed from his trying work to do a duty from which he should be relieved. How many of you have not at times carried a patient through an emergency without in any way disturbing the surgeon's work or distracting his attention. If the surgeon loses valuable minutes at a critical time the patient may suffer irreparable injury.

The anesthetist should be in a position to know the patient's condition before surgery. He should examine the patient and determine for himself the condition of heart and lungs, should familiarize himself with and be able to interpret the laboratory and x-ray findings in relation to the anesthetic risk the patient presents. He should be able

\*Chairman's address, Anesthesiology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.



to advise and prescribe preoperative medication. In other words he should be a medical consultant as well as an anesthetist. Who but a licensed physician can perform these services?

In case of death under anesthesia the courts have held the hospital liable where technician anesthetists have been used, holding that all reasonable precautions were not taken in the case. This is a risk that a hospital takes each time an anesthetic is administered by a lay anesthetist.

In closing I wish to make a plea for:

First: More adequate instruction in anesthesia in our medical schools, that the science and specialty of anesthesia may be advanced and the lives of patients safeguarded.

Second: Justified recognition by the American Medical Association in the formation of a Section in Anesthesiology. I ask you all to work to these ends.

I also wish to reiterate and stress the following:

First: That anesthesia is the practice of medicine and is a medical specialty.

Second: That the patient is safeguarded and the surgeon is freed to do better work by concentrating his whole attention on his own field, when a competent physician administers the anesthetic.

Third: That the one and only excuse for a lay technician in the field of anesthesia is the impossibility of obtaining a medical anesthetist.

1930 Wilshire Boulevard.

## POSTURAL TENSIONS FOR NORMAL AND ABNORMAL HUMAN BEHAVIOR— THEIR SIGNIFICANCE\*

### PART II

By E. J. KEMPF, M. D.  
New York, N. Y.

DISCUSSION by H. G. Mehrrens, M. D., San Francisco;  
Walter F. Schaller, M. D., San Francisco.

WE have briefly discussed postural tensions in relation to movement, and we wish now to sketch postural tensions in relation to sensation.\*

### POSTURAL TENSION IN RELATION TO SENSATION

Diagram 3 shows how the exteroceptor and its environmental stimuli are associated with the proprioceptor and internal stimuli. Our mentation is composed of streams of exteroceptive sensations blended with proprioceptive sensations into a common order, making the content of consciousness or the stream of mentation.

Now, practically all of our exteroceptors, except the visual, are wide open to their particular environmental stimuli, and if we did not have some means of shutting off their percussions from reaching our vital functions we would soon be in a state of maniacal panic reacting without self-control.

We seem to perform this continuous self-protective function through the postural tensions

of the cerebrospinal and autonomic muscle systems, constituting attitude. Through postural attitudes we are able to focus attention, or rather regulate our reactivity, so that we locally or generally raise or lower the threshold of reactivity reflexly as we need, to maintain our equilibrium and sense of proportions of the destructive and constructive environmental forces as they are related to our potential strength and weakness and the nature of our affective needs.

Naturally, when we lose control of our affective pressure, and it changes despite our best efforts, the poise of our attitude breaks down and we can see our postural tensions (bodily and facial expressions) change. Through these changes we read the nature or state of one another's affective pressure or emotions and the degree of his control of them.

### INTERPRETATION OF POSTURAL TENSIONS

This brings us to a new language of symptoms and meanings of postural tensions in relation to attitude and character formation. As a people we are still quite ignorant in our understanding of the meanings of our own postural tensions. We are more adept at seeing through others than seeing through ourselves (whom we would have perfect), until we reveal ourselves to others who then kindly or cruelly show us what they see in us, much to our benefit or chagrin.

As physicians, our clinical responsibilities compel us to burden ourselves not only with the study of the symptoms of organic diseases, but with the study of the more elusive and subtle meanings of symptoms of functional diseases, of the psychoses, and particularly those distressing neuroses of hypertensions and hypotensions of the vital organs which have impaired but not overcome the integrity of the personality.

The most serious of the postural tensions are not those which are adapted to control the influence upon us of environmental situations, but those which are used to suppress emotions and wishes and memories within ourselves of which we are fearful because they are ridiculous, wrong, dangerous, or asocial. As the suppressed affective pressure accumulates and becomes intense, the viscera assume hypertensions like compressed springs as if the affective pressure accumulated in the tensions of the neuromuscular circuits. Our clinical experience shows that such distressing states of functional hypertension may involve any of the vital organs containing muscle tissue. We find it in the heart and arterial and capillary blood vessels, the pharynx, bronchial tubes, esophagus, stomach, small intestine, colon, rectum, and genito-urinary organs. Sometimes emergency surgical interference is necessary, but far more often it is decidedly unnecessary and, for the future of the patient, most unwise. Many of our surgeons need to be educated about the psychopathology of spastic and flaccid tonus of the viscera.

The continuous problem of everyday life for every man is to solve his personal relations so as to fit them to his affective pressure, and solve

\* Read before the Neuropsychiatry Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930. Part I was printed in September California and Western Medicine, page 182.



his affective pressure so as to fit himself to his personal relations. When environmental situations (particularly personal relations) are intolerable we turn away from them or try to change them. When we cannot change them we must change our affectivity.

We can change our affectivity through suppression, until the wishes or feelings cannot act although we are conscious of them. We may hold the affective pressure in suppression until a suitable opportunity develops, by assuming characterological postural tensions, mannerisms, and beliefs.

We may need to suppress our wishes so as to forget them, get rid of them, that is to say, become unconscious of them; and not succeed in doing it because too many suggestive influences keep us conscious of them: then we are preoccupied, confused and distracted, much to our inefficiency. There is an obvious contrast between the postural tensions of an alert person and one who is distracted and confused.

We may repress our feelings so that we no longer are conscious of them (cannot remember them) by concentrating more intently upon a covering attitude, mannerism, and belief. Now, when such defenses become persistent, severe, incapacitating, and are analyzed effectively so as to bring relief, we find that patients invariably pass through changes from postural hypertension to states of normal relaxation, or from hypotension and apathy or dejection to normal firmness. We see these phenomena even after many years of persistent abnormal tension.

Our postural tensions reveal our way of holding our affective pressure so as to fit it to our situations as we see them. We are all aware of the characterological quality of a great many forms of postural tension and are readily able to read the more simple ones such as humility and obeisance, dignity, pride, haughtiness, cowardice, courageousness, timidity, bluffing, threatening, indifference, earnestness, etc. We are not so adept at reading the more subtle, complicated and eccentric postural tensions. Often the form of the postural tensions reveals the nature of the suppressed or repressed effect. This is particularly so when we know what the personal relations are and what the ways of thinking about them are like.

When the repressed affect is too vigorous and the individual is too fearful of it, severe compensatory postural tensions develop which may finally become unadaptable to the social situations. Thus psychoses with delusions, such as the maniacal and paranoid types, and obsessions, phobias, the hysterical attitudes, spastic and flaccid paralyses, and paresthesias develop.

When the affective pressure is too vigorous to be controlled by the postural tensions of the ego and it becomes displaced from reality and dissociated from the ego to pursue its own course of internal sensorimotor wishfulfillment, then hallucinations and phantasying, so common in dementia praecox, develop.

The postural tensions of the viscera become involved as the affective pressure is dammed up from its normal outlets of projective functioning. Thus we have visceral hyper- and hypotensions which produce great distress and malfunctioning; constituting functional and metabolic, and finally, organic disease as the tissue cells become hypertrophic from excessive use or atrophic from disuse. The circulatory system, local or general, is always intimately involved according to the nature of the suppressed affective pressure and the tensions which are developed.

Obviously, social obligations and responsibilities are often such that they are paramount to the affectivity of the individual and he must suffer the disease-producing consequences of having to suppress an antisocial affective pressure. The cure of his diseased functioning lies in inducing a healthful affective readjustment by producing such changes in his personal relations as will make it possible for him to get some self-expression, self-understanding, and self-control so that he can again function more normally.

When we cannot change our feelings or thoughts and they are impractical and unwise, we must get someone who understands us and can help us to change them, through (1) reasoning with us, (2) sympathetically persuading us, (3) analyzing us until we change, or (4) compelling us to change through punishment.

We all tend to have a general normal postural tonus when our work, thoughts, beliefs, and phantasies about the realities of our social situation are effective and reassuring. When the realities of our situation are not reassuring but are actively disturbing to our reasoning, then our autonomic balance becomes disturbed. When our beliefs about our situation, although it is actually safe, are not reassuring, our autonomic status also becomes upset. When our situation is really unsafe but we entertain reassuring pleasing phantasies and beliefs about it, we live in a dangerous state of comfortable functioning when we should really be in a state of autonomic dysrhythmia. Many people live in wishfulfilling phantasies rather than face the realities of life because therein they feel more comfortable. Many persons develop psychoses replete with pleasurable phantasies mingled with disturbing insight into the reality of their plight. Many finally abandon the phantasy system to endure the realities and make the best of it. Many abandon all realities and submerge themselves in continuous phantasies for relief and even happiness.

Hence the physician, in analyzing his patient's autonomic status, should correlate it with his beliefs, phantasies, personal relations, general interests, economic and social status, work and play. If the patients' autonomic functioning is normal and he is doing his everyday work well enough we have a healthy person. If his autonomic status is normal but the patient is living in illusions and phantasies, his situation is dangerous and he needs to be pulled out of it and put to work, even at the risk of some temporary autonomic disturbance, until he becomes reconditioned to



liking work, that is, he becomes autonomically responsive to work.

If our patient shows autonomic hypertension or hypotension, and his work is too distressing or severe for his powers, producing fear of failure, he must be influenced to let up. If his autonomic tonus shows stress and his daily work is of an ordinary nature which he should be able to carry fairly easily, then we know that his attitude, belief, ideal, pride, philosophy, imaginations about what he is trying to accomplish, or his fear of failure, or fear of some particular person's scorn (probably business or marital partner), is the pathologic cause; and he must be influenced to change his views and philosophy so that he can lose without developing compensatory tensions.

When the postural tonus is hypertense or hypotense and the patient is not trying to be productive or creative, but is living a life of idle dreams and phantasies, his situation is grave; and we must do everything possible to influence him to take up some occupation with realities, in the form of recreation and attractive work, to relieve the tensions which attend futility and social inferiority.

Fear of failure in any form tends to produce hypertensions, whereas indifference to failure tends to produce hypotensions.

#### SUMMARY

Postural tensions of the striped and unstriped muscular systems have great significance for human behavior, both normal and abnormal, in that they are the basis for overt action, constitute attitude and characterological qualities of the personality, and contribute to the control of attention, mentation, and sensation.

Wading River, Long Island.

#### DISCUSSION

H. G. MEHRTENS, M. D. (Stanford University Hospital, San Francisco).—Doctor Kempf's paper seems to me very comforting. He makes a psychiatric problem understandable to the physiologically trained man. It is just this sort of work that is so necessary if we are to keep psychiatry as a medical specialty. Too frequently at the present time is the psychiatrist forced to utilize two distinct sets of unrelated facts. On one hand, he has facts related to physics, chemistry, physiology, and biology; on the other hand, he has facts and procedures founded on psychologic data. They are metaphysical in type and, like oil and water, no amount of shaking will cause them to mix.

At times this situation puts the psychiatrist in an anomalous position. He knows that his practical problems are pressing for his solution. It is urgent that he utilize every helpful means offered to him, be it physical or metaphysical. But there are occasions when he wishes that all his procedures might have some common denominator.

Doctor Kempf, with his wide experience in psychoanalytic work but with his healthy interest in physiology, particularly of the autonomic nervous system, has been especially well prepared to attack the problem of solving the fundamental relationship between these two systems.

It is a matter of common experience that many of the facts so well brought out by Doctor Kempf have been observed by us in our clinical work. It is to his great credit that he has not only observed them, but explained them. He makes it possible for us to again review these observations in our daily work. I hope the time will come in the not far distant future when

it will be possible for the psychiatrist to think just as physiologically as the internist. It is true that it seems unlikely that in the near future the relationship of much psychologic data can be related to the physiological laws, but every advance made in that direction (and Doctor Kempf's contributions have been great) will make for increasing efficiency of our psychiatric work and satisfaction in practicing our specialty.

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WALTER F. SCHALLER, M. D. (909 Hyde Street, San Francisco).—For many years Doctor Kempf has investigated the relationship of the autonomic system to psychologic states. During the winter of 1918-1919 I had the pleasure of listening to a paper read by Doctor Kempf on this subject in a program of the New York Neurological Society, in which he outlined the views subsequently published in his book, "Autonomic Functions and the Personality." Doctor Kempf in his present paper now formulates a more precise conception of the sensorimotor reflex to explain the meaning of postural muscular tensions, which, in effect, he believes underlie behavior, that exteroceptive stimulation is moderated by these tensions, that they hold affective pressures to conform to given situations, and that conditions become serious when these tensions are used to suppress disturbing wishes, emotions, and memories. Dystonic states then ensue, which, according to their different mechanisms, determine neuroses and psychoses. The author admits that mentation influences these tensions, and that in depressed states muscular tonus is altered. It is not specifically stated that the emotions have a peripheral origin, but this appears to be the inference, and that the hypothesis supports the James Lange theory of the emotions. I would ask the author to clarify this particular point, as I am still to be convinced that the higher psychic functions expressed by mentation do not originate and determine our affective states. I am aware that the author has analyzed the experiments of Sherrington and Cannon to support his theory, drawing somewhat different conclusions from certain of these experiments, notably, the classical spinal and vagal deafferentation of Sherrington.

Let us suppose a situation of everyday life, occurring in an individual of normal nervous stability, with no previous disturbing mental complexes. He turns on the bath water, and in the meanwhile is engaging in pleasurable conversation in another room; suddenly he recollects that the water must have overflowed, with probably considerable damage. He immediately associates ideas of carelessness, discomfort, and financial loss, and with these ideas set into motion, suddenly starts toward the bathroom with tense muscles and vasomotor reactions, accompanied by a feeling of discomfort and apprehension. Whether the primary thoughts make him fear, or the postural tension engendered by these thoughts make him fear, it is obvious that the whole psychomotor activity is set in motion by pure mentation. That postural tensions may act conversely, as suggested by the author, forming a vicious circle, is freely admitted, and may be combated by medicinal and physiotherapeutic measures in common use. If, according to the author, however, the postural tensions determine psychopathology, why then is it not logical to emphasize physical therapy rather than psychotherapy by dialectics, persuasion, analysis, and punishment, as advocated by the author?

The state which the author describes as a wide-open exteroceptive apparatus is well recognized by neuropsychiatrists. The control of these afferent stimuli has, to my mind, been best explained by cerebral inhibition, rather than peripheral control. A comparison may be had in the well-known physiological effect of lack of pyramidal control of the tendon reflexes. When the inhibitory cerebral neuron is depressed, the exteroceptive stimulus of the tendon tap is allowed full play through the uninhibited reflex arc.



These criticisms just voiced are in the spirit of doubt and inquiry. I render homage to Doctor Kempf as a brilliant investigator in probably the most complex problem in all medicine.

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DOCTOR KEMPf (Closing).—Doctor Mehrtens and Doctor Schaller both call attention to the importance of mentation (idea, belief) in producing affective changes and changes in postural tensions. There is much evidence to show that mentation in relation to environmental situations influences affectivity and postural tensions. In this paper I wish to bring out how postural tensions are intrinsic to the reflex efferent-afferent circuit, and how such circuits are compounded through integrative associations into higher unities or postural attitudes having definite characterological significance.

It is common experience that any idea, as such, has little weight in everyday life until affective reactions occur and attitude changes occur. Then we react according to the affectivity and the attitude. For instance, the association of secondary ideas to the initial idea may be flight, or fight, or indifference, or amusement, or chagrin—according to the affectivity and attitude. At one time we may be amused at the bathtub situation and at another quite exasperated. Through learning to read the language of postural attitudes we learn to understand the deeper affective and characterological make-up of the patient and ourselves in particular kinds of situations, especially in personal relations.

I wish to express my appreciation of the important co-determinants of human behavior which Doctor Mehrtens and Doctor Schaller each so interestingly added for consideration in relation to the influence of postural tensions. I regret that the length of the paper prevents me from discussing the James-Lange theory of the origin of emotions. I am preparing for publication a theory of the continuity of the stream of autonomic-affective pressure, its origin, nature, and function, in which a full discussion of states of its emotional variation to cerebral and environmental influences as well as metabolic or internal influences will be brought out.

## THE MENTAL HYGIENE SURVEY OF CALIFORNIA\*

### PART II

By FREDERICK H. ALLEN, M. D.  
*Philadelphia*

AND

GLENN MYERS, M. D.  
*Los Angeles*

### PROBLEMS RELATED TO THE MENTALLY DEFICIENT AND BACKWARD

A PROBLEM that confronts each community is the development and utilization of adequate facilities to assist as many persons as possible to adjust themselves to whatever they are capable of doing. Each community, therefore, has a large responsibility in the field of the mentally deficient. The state's function begins with the remaining group, who indicate through their behavior that they are not making a satisfactory adjustment and also with that vegetative type that presents mainly a custodial problem. The most important

factor in adjusting these intellectually retarded and deficient persons is the public school. A partial survey carried out by the State Department of Education revealed that 13,617 mentally retarded children were in the public schools and that 5710 of this number had an intelligence quotient below 70. Approximately 90 per cent of the mentally retarded can be adapted to community life in activities consistent with their abilities. In order to adequately cope with this problem, it is necessary to recognize those pupils early who are mentally retarded and whose low intelligence level interferes with their adjustment in the average classroom. Every school system having more than ten such children should provide a specially trained teacher for this group. Larger communities should develop their work in special centers modeled after those now in operation in Los Angeles and San Francisco. Small communities will need depend upon traveling clinics or assistance provided by the State Department of Education. State aid up to 50 per cent of the cost should be available to those communities whose finances are inadequate to permit them to develop special class work.

The principle of complete state care of the mentally deficient should be continued, and counties should be relieved of those charges in need of institutional care. At least 1000 additional beds are indicated at this time to provide facilities for those children obviously in need of institutional care. The two State Homes, at the time of the survey, cared for 2812 patients; of these, 325 were in one institution and 2487 in the other. The larger home cared for its charges at a per capita cost of sixty-eight cents a day, making it impossible to provide an adequate educational program and allowing only bare custodial care. The per capita allowance for these institutions should be at least one dollar a day.

A separate institution should be provided for the care and treatment of the 1037 epileptic patients now scattered throughout all the state institutions.

### MENTAL PROBLEMS OF DELINQUENCY

Programs developed for the understanding and treatment of juvenile and adult delinquency, both in the communities and in the institutions, should be based upon the established psychological fact that behavior, expressing itself as delinquency, has meaning to the individual and so has reason for existing. Treatment, therefore, should have as its primary objective the understanding and removal of the underlying causes of the behavior so expressed. This approach provides the best means of changing the delinquent person to one with normal behavior. The modification of behavior through punishment becomes a method of decreasing importance as it is replaced by the clinical and mental hygiene approach. The following recommendations are made to give this primary objective a more effective application:

1. Curtailment of the scope of the Juvenile Court with the elimination (1) of all dependency cases except those needing court orders for their

\* Read before the Neuropsychiatry Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931. Part I was printed in September California and Western Medicine, page 177.

Editor's Note.—See, also, a preliminary report on the California State Mental Hygiene Survey in December 1930 California and Western Medicine, page 872.



protection, and (2) of a large number of the less serious delinquency cases.

2. The development in every community of better facilities in schools, clinics and social agencies to deal with early delinquency problems on a case work basis in close coöperation with the courts. The court work should be reserved for the more serious cases.

3. Raising the standards of training of probation officers and lessening their case loads to permit good treatment work.

4. More psychiatric and clinical facilities in courts for careful examinations and for the planning of treatment.

5. Extension of referee work and training of referees in social case work, particularly in fields related to the problems of childhood.

6. Continuation and extension of state supervision of parole.

7. More carefully planned admission policies of detention homes, which should be used more extensively for clinical studies of children who cannot be kept in their own homes.

#### CORRECTIONAL INSTITUTIONS IN CALIFORNIA

The essential purpose of the three state institutions for juvenile delinquents is to deal with the more difficult and unstable children who have not responded well to the efforts of the community to treat them. No child should be sent to a correctional school when there is a reasonable possibility of adaptation in the community without commitment. The fundamental purpose of these schools should be to deal with the difficult children and to provide a clinical, educational program suited to their individual needs. There should be a more extensive development of psychological and psychiatric clinical facilities. A more elastic program is needed to take care of the so-called "psychopathic delinquent." For the development of this program, additional units are needed. Such expansion appears to be sounder and more feasible than the development of a special institution. Vocational programs in these schools should be expanded with trained vocational instructors. Disciplinary authority should be centered in the disciplinarian or assistant superintendent and the company officers should be relieved of the responsibility for fixing discipline except in the case of very minor offenses. More trained parole workers are needed for follow-up and closer supervision of the children on parole. There should be a revision of salary schedules to allow the institutions to keep their trained personnel, thereby raising the educational and cultural standards of the staffs. One of the three schools has established a high standard of educational work and mental hygiene program that compares favorably with the best correctional institutions of the United States. On February 1, 1930, the combined population of the three schools was 1125 and the combined number on parole and placement was 1244.

#### ADULT PROBATION—PRISONS—PAROLE

Any county having twenty-five or more adults on probation should expand the adult probation

work, through setting up separate organizations and employing full-time persons for this work. State aid should be possible for the smaller counties that are willing to meet adequate standards of training but do not have finances to carry the burden unaided. Probation work should be more extensively used in the lower courts.

Adequate psychiatric services should be developed in the state prisons to bring about better classification and segregation of prisoners, particularly those who are psychotic. Psychotic prisoners should be transferred to the state hospitals as rapidly as possible.

The proposed new institution for male first offenders should be planned and developed by a group including the best trained persons in the state. Otherwise this institution will be just another prison and will serve no constructive purpose.

The new "prison" for women will need the constructive guidance of trained persons to make possible the development of a program of industry and clinical activity suitable for this group, but now completely lacking.

Parole work in the two adult prisons should be placed on a professional basis, with the employment of a full-time paid group of trained professional persons to study and select prisoners suitable and ready for parole. More trained parole officers should be provided to supervise them after leaving prison. Idleness in the overcrowded prisons for men is a problem of enormous importance from the standpoint of mental hygiene.

#### FACILITIES IN PUBLIC SCHOOLS FOR DEALING WITH VARIOUS TYPES OF MENTAL HYGIENE PROBLEMS

The principle of compulsory education has made the school the center of the social and educational life of most children in every community. Through its operations the schools have had to deal with children of every type presenting every kind of problem. The school becomes the logical center of constructive mental hygiene activities of the community. To meet this responsibility the school should develop and extend facilities for study and treatment. Clinics utilizing the services of psychiatrists, psychologists, and trained social case workers should be developed wherever possible. As a part of the clinical program, it is recommended that schools proceed in the development of visiting teacher work. A visiting teacher is the trained social case worker assigned to the study and treatment of the various types of adjustment problems in school children. In the smaller communities, traveling mental hygiene clinics should be utilized. The work in speech correction should be extended. Problems associated with attendance are mental hygiene problems to be approached in the same manner as other behavior problems. Since the school must deal with children of varying abilities, the principle of differentiated curricula should be accepted and extended. The vocational guidance work should be developed with trained persons in charge. The use of teachers with special training



as counselors should be closely related to the development of visiting teacher work. Special educational facilities for the physically handicapped should be extended to meet the mental health needs of this group. The disciplinary philosophy of the school personnel should be influenced more by the mental hygiene principle which stresses the need to understand rather than to condemn and punish. The more restricted use of such methods as corporal punishment, threatening, lecturing, etc., will follow when more educators are motivated by the spirit of mental hygiene.

#### PSYCHIATRIC AND PSYCHOLOGICAL FACILITIES IN CALIFORNIA

The development of psychiatric clinics for adults and children is an important factor in any community program. Such clinics should offer an opportunity for early diagnosis and treatment. Here rests one of the best approaches for good preventive work. The principal objective of these clinics should be treatment over as long a period as is indicated. They should have the opportunity of dealing with mental conditions and behavior problems in their early stages, when treatment can be most effective. Child-guidance clinics have developed as the most effective way of pooling the professional techniques of psychiatrists, psychologists, and psychiatric social workers in studying and treating the problems of childhood. The courts will need psychiatric facilities of their own for the study and treatment of those persons for whom they are responsible. Traveling mental hygiene clinics organized by the Bureau of Juvenile Research and the various state hospitals should be extended to give better psychiatric service to the smaller communities. The out-patient clinics of the larger hospitals should all include psychiatric clinics for both children and adults. A portion of the service of these clinics needs to be diagnostic, but in so far as possible the emphasis on treatment should be greatly extended. There is a marked shortage of clinics for the treatment of adult psychiatric problems. Psychiatrists should be attached to gastro-intestinal, gynecological, and genito-urinary clinics by reason of the larger number of psychopathic patients attending those clinics.

#### TRAINING OF PROFESSIONAL GROUPS IN PSYCHIATRY AND MENTAL HYGIENE

Technical and clinical aspects of mental hygiene require a well trained professional group, particularly in the fields of medicine, mental nursing, psychology, social work, and teaching. Programs for their training will play an important rôle in determining the quality of mental hygiene work in the state. Psychiatry should be a major subject in the medical schools so as to insure for the physician a broad understanding of human behavior and its deviations. The medical student, in addition to having an understanding of the conventional phases of mental pathology, should have an adequate understanding of the nature and treatment of psychoneurotic conditions, behavior problems of childhood and the social and emotional dislocations incident to family life. The relation

of emotional problems to other medical and surgical conditions should be stressed. Sufficient clinical work should be provided to allow each student to have a personal contact with psychiatric problems. Courses in psychiatry and mental nursing should be in the curriculum of every nurses' training school. Those nurses entering public health work need to be better oriented in the field of mental hygiene. It is particularly needed by those nurses planning to become school nurses. Teachers need to be given a technical understanding of personality growth in order that they may have a broader conception of their own influences on the mental growth of the child and a better understanding of the common problems of children that arise in the classroom. There are no facilities in California for the training of the visiting teacher, who is the social case worker in the schools. The training of social workers in the principles of modern psychiatry and mental hygiene should form an important part of their training program. They should be trained to give students better genetic understanding of personality growth, emotional and psychological bases of family maladjustments and more understanding of the basic reasons for the common types of difficulties that are referred to social and health agencies. More social agencies are needed with higher standards of case work.

#### THE STATE DEPARTMENT OF INSTITUTIONS

The state government annually spends millions of dollars in various activities that are closely related to the field of mental hygiene. The type of organization and the degree of professional skill available to the state departments are of great importance for the guidance and administration of this work. The State Department of Institutions has administrative responsibility for the six state hospitals, the state narcotic hospital, the two institutions for mental defectives, the three correctional schools for juvenile delinquents, and the state institutions for the deaf, dumb and blind. The department has brought about some very desirable improvements which have paved the way to the next important step in organization. The state institutions need a continuity in administrative policy without interruption each time the state administration changes. To bring about such continuity it would aid greatly if the State Department of Institutions could be under the control of a nonpartisan board of directors, appointed by the Governor for a period of six years with retirement of two members every second year. This board should be allowed to submit several names to the Governor for consideration as director, whose continuance in office should depend upon his ability to conduct a continuously constructive and progressive program. Qualifications for the director should be set high and he should be one whose training and ability would enable him to assume leadership, not only with the clinical staff of the Department of Institutions, but also with the clinical staffs of the various institutions for which the department is responsible. The Department of Institutions has large clinical responsibilities



which include some of the most intricate problems confronting modern psychiatry and education. If this department is to give the support and guidance that these problems demand, the staff must include well-trained specialists in the various phases of institutional work. The director, therefore, should have the assistance of a clinical director of state hospitals, a chief psychiatric social worker, a state supervisor of parole work in the correctional institutions, a director of educational programs and occupational therapy, a state dietitian, and a state statistician. Salaries should be sufficiently remunerative to attract well qualified persons to these positions.

#### THE STATE DEPARTMENT OF SOCIAL WELFARE

The State Department of Social Welfare was created in 1927 to take over the functions of the State Board of Charities and Corrections and certain other activities previously assigned to the State Board of Control. The activities of this department of the state government bring it closely in touch with the social welfare work of the state that is being done by private and public agencies. Some of the specific responsibilities of this department are: supervision of the work related to the care and support of the dependent child and administration of the state aid which is given for dependent children in orphanages, foster homes, or in their own homes. The work with dependent children includes the administration and supervision of the adoption law. The department is responsible for the supervision of all adult and juvenile probation work being done in the state. It has supervision of all the support being given to the needy blind and the needy aged. It is also the clearing house for statistics of various phases of social welfare work and includes the supervision of all county jails, county hospitals, county welfare departments, and county almshouses. It has the right to visit and report on the work of the state institutions, including the prisons. The policy has been to work with all the social agencies in the cities and counties, to assist them in forming standards and of guiding them to more effective work in the various fields of social welfare. The objective has been to bring as many agencies as possible to a standard of work that should enable the department to turn over to such agencies the actual administrative work. In this way the department has become a positive educational force and not merely an investigatory body. When the department was created in 1927, provision was made for a social welfare board of six members appointed by the Governor for a term of four years. The powers of the board should include the right to submit to the Governor several names for consideration for the post of director. The director should be a trained person who can assume leadership in the social welfare program of the state. The State Department of Social Welfare needs the continuity of policy and staff which should come when the director and the technical staff carry over from one state administration to another.

#### NEED FOR A PSYCHIATRIC INSTITUTE IN CALIFORNIA

California needs a well organized and adequately staffed psychiatric institute, which should form the scientific and intellectual center of all psychiatric and mental hygiene activities of the state. This institute should be organized as a department of the State Department of Institutions and at the same time should be an integral part of the state university. The joint relationship would insure a close affiliation with all the state institutions and should provide a definite responsibility for developing their clinical programs. Connection with the university would give the institute a definite part in the training programs of physicians, teachers, social workers and others, and would be the means of stimulating research. The state university needs to have this connection with the mental hygiene activities of the state. *The establishment of this institute is one of the most important needs that the state has in developing its mental hygiene program.* The professional staff of the State Department of Institutions should constitute part of the staff of the institute and should have appointments on the faculty of the state university.

#### NEED FOR A STATE-WIDE SOCIETY

The survey has revealed that there is a great deal of interest throughout the state in all phases of social welfare and mental hygiene work, but that no adequate channel exists through which this interest can be expressed. There is the need for an organization that will be able to organize and extend activities throughout the state such as to further legislation, to elevate the standards of care and treatment in institutions, to formulate and carry through an adequate program for the care and treatment of children, to stimulate better clinical facilities in schools and communities and a variety of other important activities. One of the most important recommendations growing out of this survey is that there should be organized a state-wide society, somewhat similar to the State Charities Aid Society of New York and the Public Charities Association of Pennsylvania, nonpolitical in character, supported by private contributions, carrying through from one state administration to another and working with all the social and health activities of the state departments as well as with the public and private social and health agencies of the various communities. This organization should be primarily educational in scope. It should be concerned largely with fact-finding and fact-distributing. Such an organization would not duplicate any other activity that is now going on. It would supplement the work of the State Conference of Social Work and would have a close relation to parent-teacher organizations, taxpayers' associations, the League of Women Voters, and all other organizations that are state-wide in their scope and interested in the social and financial implications of human maladjustment. It should have a budget of at least \$25,000 a year with a full-time director and a few well trained



assistants. It should have a board of directors representative of prominent and professional people in all sections of the state. The organization of groups in many communities should thus be insured, around which would revolve the educational activities in fields related to mental hygiene and social welfare. Through the payment of dues it should be possible to maintain financial support. A mental hygiene division could be developed into one of the strongest sections of the organization.

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### FEMALE SEX HORMONES AND MENSTRUATION\*

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RECENT developments in the recognition of various hormones concerned with the physiology of the female sex organs have served to open a fertile field for investigation. Although a great deal yet remains obscure, marked progress has been made and it would seem that one may anticipate for the near future an important advance in our understanding of the functional disturbances of menstruation. The following brief review presents some of the more outstanding observations that have been recorded, and an attempt is made to demonstrate the interrelationship between the hormones of the ovaries and the anterior hypophysis, the application of animal studies to the human, and the importance of recent discoveries in the treatment of menstrual disorders.

#### THE MENSTRUAL CYCLE

Menstruation has always been a subject of great interest to mankind, but it is only within a comparatively few years that there has been any realization of the significance of this process and the anatomic changes which accompany it. For this we are indebted to the epoch-making histologic investigations of Hirschmann and Adler, R. Schroeder, R. Meyer, and others, who demonstrated the existence of a definite recurring cycle of events in the ovary and in the endometrium. All work on "sex hormones" must be construed in keeping with these anatomical transformations and seek to explain the mechanism by which they are brought about.

The normal menstrual cycle takes approximately twenty-eight days to run its course and it is customary for clinical purposes to regard the

day of onset of menstruation as the first day of the cycle. On the fourth or fifth day, that is immediately after the termination of the menses, are found definite processes in ovaries and endometrium. In one of the ovaries a primordial follicle is developing and maturing into a graafian follicle, and the endometrium, which was left with but a thin basal layer, is proliferating and increasing in depth with the formation of a superficial functional layer. At about the fourteenth day the graafian follicle has reached its maximum stage of development so that it ruptures and the ovum escapes to be taken up by a ciliary current and carried down the fallopian tube to the uterus. The ruptured follicle then undergoes a complete transformation to become a *corpus luteum*, and this is accompanied with a set of characteristic changes in the histology of the endometrium. Before ovulation occurs the glands of the functional layer are straight with a clearly outlined lumen, the individual cells of a low columnar type, and the stroma dense and made up of spindle-shaped connective tissue cells. With the development of the corpus luteum, however, the endometrial glands assume an altogether different appearance; they become markedly swollen and tortuous, the lumen irregular, and they are filled with a secretion of mucus. The stroma has also changed in that it is edematous, laden with glycogen, coursed with numerous dilated blood vessels, and the individual cells have hypertrophied and assumed a polygonal shape so that they have become identical with the "decidual cells" of pregnancy.

One of two things may now occur. If conception has taken place, the fertilized ovum embeds itself in the endometrium which has been prepared for its reception, and the fully developed yellow body in the ovary continues its existence as the "corpus luteum of pregnancy." If, however, pregnancy does not occur, a series of degenerative changes set in. The corpus luteum begins to regress, and the tissues of the endometrium undergo necrosis. As this progresses the surface mucosa is cast off, blood vessels are torn across, and the hemorrhage of menstruation ensues. The desquamation takes about three days for its completion, and finally the whole cavity of the uterus remains covered with but the thin basal layer. A new primordial follicle is now launched forth on its career, the endometrium again begins to proliferate, and the same series of changes is repeated during the succeeding four weeks.

#### THE HORMONE FACTORS OF MENSTRUATION

It has long been recognized clinically that there is a vital intercommunication between the various glands of internal secretion. This is also true in regard to the ductless glands which are responsible for menstruation, and this fact must be constantly kept in mind. Although such distant structures as the thyroid and the adrenal must play some part, little is understood as to their exact rôle and in this short review their influence must be overlooked. The attention of recent investigators has been directed mainly to the effects

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of substances which are purported to arise from (a) the ovary, and (b) the anterior lobe of the hypophysis.

A. *Ovary*.—Although it was assumed that the ovary had an internal secretion, it is only since the work of Frank, Allen, Doisy, Corner, Hisaw, Laqueur, Loewe, Zondek, Aschheim, Clauberg, and others, that any progress has been made in its identification. It now seems fairly well proven that at least two hormones are manufactured by the ovary, and each plays a distinct rôle in the events of the menstrual cycle.

1. *Estrin*.—The first of these hormones to be recognized has received a great deal of publicity in various ways, and for some time was considered as the only internal secretion of the ovary. It has been given a vast array of names which have served to complicate the subject, for it seems that every investigator and every manufacturing concern considers it a duty to burden the already existing terminology with a new contribution. It is known, for instance, as the ovarian hormone, the female sex hormone, the follicular hormone, the estrous hormone, estrin, folliculin, menformon, theelin, tokokin, thykinin, estrogen, amniotin, and so forth.

The basic characteristic of this hormone is that it is an "estrous-producing" and a "growth-producing" substance, and when injected into castrated rats, mice, or guinea-pigs it induces histologic changes which are normally found during the period of estrus and a growth of the uterus and mammary glands. In the human it is produced both by the graafian follicle and corpus luteum, in fact, its production seems to increase gradually during the course of the menstrual cycle and to reach its maximum just before the onset of menstruation. Its effect in the human is to induce a growth of the uterus, turgor, and a proliferation of the endometrium. It is thus the first substance to induce an endometrial reaction immediately after menstruation and is the factor concerned with the "interval" type of mucosa, but it continues to function and to an increasing extent up to the time of menstruation.

Estrin is apparently widely distributed in nature, and it would seem that it must be considered as a basic biologic substance rather than merely a hormone specific for the ovary. It has no species specificity and has been demonstrated in the follicle fluid, corpus luteum and placenta of many different birds and animals, and has likewise been found to act upon many species. It has been demonstrated in the blood, urine, and bile of both men and women, and in numerous types of plants from the yeast organism up (buds of female willows, yellow pond lily, potatoes, sugar beets, rice, wheat, etc.). As Frank states, it would seem that we are dealing with a substance which in lower forms of plant life is merely a growth-stimulating principle, and "that gradually as we trace it through the higher plants it becomes more and more localized in the specifically generative portions of the plant. Finally in the animal kingdom the hormone is increasingly centralized in the ovary and its action is more and more

specifically limited to the generative tract." Doisy has recently succeeded in obtaining it in a crystalline form (Theelin).

2. *Progestin*.—The action of estrin, however, is insufficient to account for all the endometrial changes that precede menstruation, and the work of Corner, Hisaw, and their associates has demonstrated the existence of a hormone of the corpus luteum (termed "progestin" by W. Allen, Corner, et al.) which is entirely distinct from estrin in its effects. There is as yet but little experimental data as to the influence of this substance in the higher mammals, but this can be readily deduced from certain animal investigations and the histologic studies previously outlined. It has been shown that an extract of this second corpus luteum factor can induce uterine reactions characteristic of early pregnancy, such as progestational proliferation of the rabbit's endometrium, or the special sensitization of the guinea-pig's uterus necessary for the production of experimental deciduomata; it can produce "pseudo-pregnancy" in the vagina of rats and mice, and cause a relaxation of the guinea-pig's symphysis pubis, a reaction which normally occurs in this animal during pregnancy; it can inhibit ovulation, and finally its administration in sufficient doses can maintain pregnancy until full term in rabbits spayed at the eighteenth hour after mating. A very important observation in regard to these experiments is the fact that it is absolutely necessary to give preliminary doses of estrin before the required effects can be induced with progestin. These results cannot be obtained with either estrin or progestin alone, nor by giving progestin first and estrin second. It is a "one-two" reaction. Hisaw points out, which cannot be reversed.

The same procedure is found in the reactions of the endometrium during the normal menstrual cycle, the estrin stimulating proliferation during the first half of the cycle. During the second half there is the combined effect of both estrin and progestin, the influence of the latter resulting in those specific changes (secretory phase of glands; decidual cells) which make up the "premenstrual" or "pregnoid" type of endometrium and which is essential for the reception and development of the fertilized ovum.

B. *Anterior Hypophysis*.—The existence of a functional interrelationship between the anterior lobe of the hypophysis and the ovaries has been demonstrated by many clinical and anatomic studies. For instance, as a result of hypophysectomy or destruction of the gland by disease there results an atrophy of the pelvic organs; during pregnancy there is a characteristic enlargement of the anterior lobe, and this also occurs following castration although there is a histologic difference between the two conditions. It remained, however, for Evans and Long in 1921 to produce definite changes in the ovaries of experimental animals by the administration of certain extracts of the anterior lobe. By this means they produced an inhibition of the onset of estrus in immature animals and a marked enlargement of the ovaries due to the formation of very abundant lutein



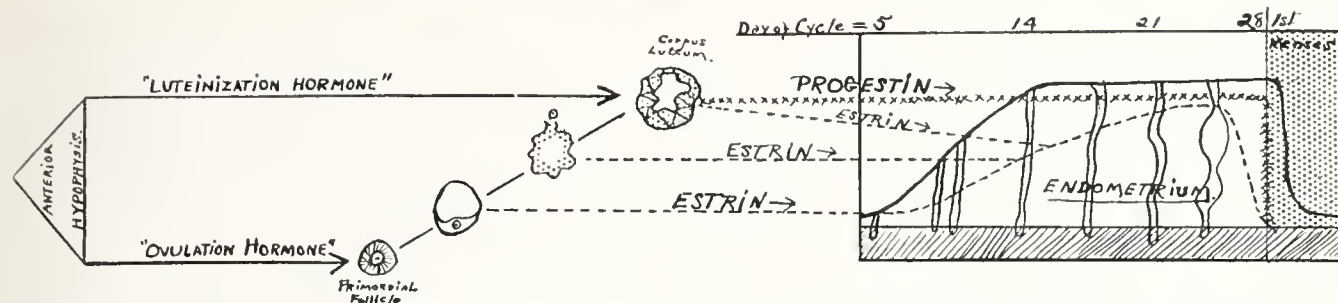


Diagram illustrating the relation of the "sex hormones" of the anterior hypophysis and the ovaries to the endometrial changes of menstruation. The broken line (---) shows the effect of estrin and its production in increasing amounts till just before menstruation, while the line (xxxxx) demonstrates the influence of progesterin during the second half of the cycle. See text. (The representation of the endometrium is after R. Schroeder.)

tissue about the eggs in unruptured normal follicles and in atretic follicles. Later work (Smith and Engle; Aschheim and Zondek) with direct implantations of fresh anterior pituitary gland tissue did not corroborate these findings but produced exactly opposite results, namely, the induction of precocious sexual maturity in immature animals and the development of many graafian follicles with the accompanying "estrin" effects on the uterus and vagina. Both these studies have received abundant confirmation from numerous sources, and successful transplants have been obtained not only from numerous species, including humans, but from males and females of all ages from intra-uterine life and adolescence to adults and senile individuals.

It thus seems that we have here a number of seemingly contradictory findings regarding the action of the anterior lobe on the ovaries. The answer, however, lies in the method of preparing extracts, and it is probable that there are two hormones arising from this gland. In the first place there is the "ovulation" or "maturity" or "follicle ripening" hormone which stimulates the ovary of an immature animal in such a way as to produce the ripening of numerous follicles and hence the elaboration of estrous effects on the pelvic organs. The second, or "luteinization" factor, acts on the ovaries in such a way as to stimulate a production of lutein tissue, with the elaboration of the second ovarian (or corpus luteum) hormone and hence an inhibition of estrus or ovulation with premenstrual or pre-gravid changes in the uterus.

These effects have been considered as specific for the anterior lobe, but they have also been obtained with other tissues from pregnant individuals, for instance, from the urine, placenta, and amniotic fluid.

#### SUMMARY

On the basis of these investigations a theory has been evolved which seeks to explain the means by which the changes of normal menstruation are brought about. There is, in the first place, the influence of the anterior pituitary "follicle ripening hormone" on the development of a graafian follicle in the ovary and the consequent elaboration of estrin which in turn stimulates the uterus to growth, turgor, and the proliferation of the basal layers of the endometrium. The second anterior pituitary factor coming into play then causes a "luteinization" of the cells of the ruptured follicle and the formation of a

second ovarian hormone (progesterin) which acts on the endometrium to produce the changes characteristic of the premenstrual phase, or in the case of gestation, to decidual transformation. (See accompanying diagram.)

There are doubtless numerous deficiencies in such a theory, for it fails to explain many details regarding ovulation and it necessarily will have to be altered as new facts are brought to light. It also apparently gives no explanation for the occurrence of menstruation itself, but the answer is to be found in the fact that menstruation does not occur from direct stimulation but is due to degenerative changes which set in because of the removal of hormonal stimulation. This is shown not only by the histological demonstration of a regression of the corpus luteum as menstruation is initiated, but also by actual experiments in monkeys. Allen and others have been able to produce a marked proliferation of the endometrium in the macacus rhesus by prolonged administration of estrin, and have found that within a few days after discontinuing the injections there is a prolonged and profuse loss of blood with a desquamation of the functional layers of the endometrium.

#### LABORATORY TESTS

On the basis of the experimental studies outlined above it has been possible to develop simple laboratory tests to determine the presence of estrin or anterior pituitary hormone in the blood, urine or tissues of patients. These procedures represent a very distinct advance in the study of endocrine disorders and there are many possibilities for this method of investigation.

In the case of estrin the test consists in the injection of the substance to be examined into an adult spayed mouse, and it is considered positive when the vaginal smear shows the presence of cornified cells and an absence of leukocytes within sixty hours (Allen-Doisy test). Frank and Goldberger have developed a method to examine blood with this test and the studies which have been carried out in this manner are proving not only of interest from the standpoint of physiology, by also in the consideration of certain menstrual disorders.

The test for the anterior pituitary hormone (or hormones) is performed by the injection of the substance to be tested into immature mice or rats and noting the ovarian changes which are set up in about one hundred hours. The finding of graafian follicles denotes the presence of the

"follicle-ripening hormone," and structures with lutein cells the presence of the "luteinization hormone" (Aschheim-Zondek test). The main application of this procedure has been as a "pregnancy test," the demonstration of large amounts of the "luteinization hormone" in the urine of women being considered as positive. This test is a most accurate one and has been found correct in from 97 to 98 per cent of cases.

The Aschheim-Zondek test may also be used in the study of certain endocrine conditions. Extensive studies on the presence of unduly large amounts of one or other of these anterior lobe factors in the blood of patients have been carried out in the Stanford Gynecological Laboratory, and many interesting results have been obtained which it is thought will prove of clinical assistance.

#### THERAPY

A. *Ovary*.—In considering the question of the therapeutic use of sex hormones one is met with such a mass of contradictory reports that it is difficult to determine whether the development of biologically active substances has really been a marked advance. The problem may be considered from various standpoints: (a) the preparations available; (b) the dosage; (c) the time of administration; (d) the indications; and (e) the results.

(a) *Preparations*.—The past few years have seen a sincere attempt on the part of manufacturing concerns to cooperate with laboratories and to offer to the profession preparations which have been tested by recognized biologic standards. There are now many preparations of estrin available, and usually the potency is given as so many rat or mouse units per cubic centimeter. In his recent book Frank states that he has examined a number of commercial products and found many of them of much lower potency than was claimed. I have myself checked a few similar preparations and although it was possible to produce a reaction in most of the animals injected, it was very evident that they did not contain the required number of units. There are probably two explanations for this fact. First, biologic assay is an indefinite factor due to irregularity of response in laboratory animals, etc., and secondly, it is possible that many solutions deteriorate rapidly and so have lost much of their potency by the time they reach the consumer.

Two other objections arise. First, the preparations are very expensive, due to the complicated procedure required for their manufacture. Secondly, there is a real handicap in that most of the estrin available in this country must be administered hypodermically. This objection has been partly overcome since Pratt and Smeltzer have shown that it may be given with an intranasal spray, and since vaginal suppositories containing estrin seem to be a very effective method of administration. There is, however, a demand for preparations such as are in use in Germany and which may be given orally.

(b) *Dosage*.—The dosage is, of course, of vital importance and offers a very real problem

which is further complicated by the uncertainty regarding the absolute potency of the products in use. It would seem that very large doses must be given in order to assure a definite response in the pelvic organs. Frank and Goldberger have shown that in the premenstrual phase the blood may contain as much as one mouse unit of estrin per forty cubic centimeters of blood, while Siebke estimates that at this time the total amount in the blood is two hundred mouse units. The amounts found in the urine are also very remarkable, and Siebke in his extensive investigations found that as much as 1830 mouse units were excreted by the kidneys in the course of a twenty-eight day cycle. These figures would tend to show the importance of large dosage, and in his recent work with monkeys Allen gave as much as 80 units per day and a total of 1160 units per animal in order to produce the results he obtained. In the endometrium of a woman who has passed the menopause, I was unable to induce any histologic change, with 250 units of estrin given over a period of five days.

(c) *Time of Administration*.—Since the studies of Frank and Goldberger and Siebke have shown us that there is a variation in the amount of estrin found in the blood and that it reaches its maximum just before menstruation, it would seem that the administration of estrin should follow this plan. It should, therefore, be given in large amounts just before menstruation is expected, and Siebke in following this method has given it over a period of twelve days.

Considerable attention has been directed to Novak's suggestion that in conforming to the events of the normal cycle, estrin should be given and then followed by the administration of a corpus luteum hormone. This method has given marked success in certain animal experiments, but in the question of therapy it would seem that to follow the human cycle more closely one should combine the two suggested methods, that is, give estrin in small doses for a time and then in large doses along with the corpus luteum preparation. As the interaction of these two substances seems to be a very delicate quantitative problem it is likely that it will be some time before we know how to administer them accurately. It is possible that the solution will be found in a preparation of the corpus luteum which contains both substances in the proportions in which they normally occur in this structure.

(d) *Indications*.—The self-evident indication for the use of estrin is in women with ovarian hypofunction, and it must be regarded in the same light as insulin, namely, as a purely substitutive therapy. A careful diagnosis is an absolute prerequisite for success with this method of treatment since anatomical lesions of the pelvic organs and systemic diseases are frequent etiological factors and in such cases it is useless to resort to endocrine therapy without first attending to the primary condition.

Secondary ovarian deficiency may be said to manifest itself mainly in two ways: (a) nervous



symptoms—flushes, nervousness, headache, dizziness, vomiting—and (b) disturbances of menstruation—amenorrhea, scanty menses, lengthened intervals between menses, and possibly some cases of sterility.

(c) *Results*.—In analyzing the results that have been reported one cannot help but feel very disappointed and it must be acknowledged that this therapy has not come up to expectations. Many favorable results have, of course, been announced on the use of estrin in the treatment of nervous symptoms associated with ovarian deficiency and this is highly desirable because I feel that it is really the outstanding indication for the use of ovarian extracts. However, any estimation of clinical findings in such cases must be regarded with considerable skepticism and should be very carefully controlled, since there is always a pronounced psychic element entering the picture. We have also all seen good results in such patients by the use of simple sedatives such as bromids and luminal, and many of us regarded very favorably the dried ovarian extracts which have recently been condemned as biologically inert, so that some doubt arises as to whether the new active substances really represent a great advance. It is also likely that the problem may be faced from other standpoints. For instance, in the absence of ovarian function there results a hyperfunction of the anterior lobe which is possibly a factor in the production of symptoms, and instead of trying to supply the ovarian deficiency it may be preferable to diminish anterior hypophysial activity by x-radiation.

In the treatment of menstrual abnormalities estrin has some value, but I feel that it must only be employed under certain definite indications. In women with persistently delayed menses who complain of sterility and in whom blood tests have shown a low amount of the hormone, it may conceivably be given just before the expected period. By this method it may be possible to stimulate the endometrium to more complete development and so afford proper nidation for the fertilized ovum. However, since it seems well established that these preparations cannot stimulate the ovaries themselves it is useless and illogical to give them in the hope of correcting the menstrual irregularity. This is also the case with patients complaining of functional amenorrhea. It is possible here to give large doses of estrin and induce a "menstruation" on discontinuing the administration, just as Allen did with castrated monkeys. There are also a number of reports that this has been accomplished in humans, and many authors have greeted the finding as a notable achievement. It is, however, an absolutely useless procedure since there is no accompanying ovulation and it cannot lead to conception. The absence of menstruation *per se* does not necessarily do harm, and I fail to see any logic in inducing an abnormal blood loss in these women. The cause of the trouble is more deep-seated and does not usually lie in the uterus itself, which is the organ affected by this type of therapy.

The use of corpus luteum extracts in the treatment of menorrhagia has long been advocated because of the clinical observation that the persistence of this structure leads to amenorrhea. In view of the newer studies which demonstrate the effect progestin has on the endometrium, I fail to see just how it could control abnormal bleeding, but it will be necessary to wait until potent extracts of this substance are available for clinical purposes before a final verdict can be given. In the meanwhile there is some reason for employing estrin in these cases as it may stimulate proliferation of the endometrium and hence a more rapid tissue repair following desquamation. In the abnormal bleeding of puberty and the menopause, estrin is not only useless but is clearly contraindicated since most of these patients have a hyperplasia endometrii, a condition primarily due to an overproduction of estrin in the ovaries. Frank reports satisfactory immediate results in the treatment of kraurosis vulvae, but no permanent effect could be obtained.

B. *Anterior Hypophysis*.—In the sex hormones of the anterior lobe lie most of our hopes for the successful treatment of amenorrhea and delayed menses since we have here a powerful stimulant to the ovaries themselves. Instead of using a purely substitutive therapy we will then be initiating true ovarian and uterine function by direct stimulation. Time only will tell to what extent this will be accomplished. There is no doubt that it will be found to have many limitations. For instance, I have found by blood tests that some patients with prolonged amenorrhea already have an overproduction of anterior lobe hormone, so that it would be useless to hope for success in these women by administering further amounts of this substance.

There is as yet no potent biologic product of the sex hormones of the anterior lobe available for the profession at large, but there is no doubt that it will not be long before it can be procured. Some preparations\* have been made and clinical experimentation is in progress. The results obtained to date on the Stanford service are hopeful, but it is too soon to draw any conclusions.

There are numerous sources for the ovary-stimulating hormones now being tried. In Germany the blood serum of pregnant women has been used for direct injections, and a potent product (prolan) has been prepared from the urine of such patients. In this country a great deal of interest is focussed on the work of Professor J. B. Collip of McGill University, who has succeeded in obtaining an ovary-stimulating substance from the placenta (Emmenin). This preparation is active when administered by mouth, and preliminary experiments have been most encouraging. As has been suggested by this laboratory, it is also possible that the blood serum of castrated animals may offer a potent source for similar extracts. And finally, recent preliminary studies also point to the successful use of "luteinizing" extracts in the control of the uterine hemorrhage accompanying hyperplasia of the endometrium.

Stanford University Medical School.

## CANCER OF THE STOMACH—SURGICAL TREATMENT OF ADVANCED CASES\*

By ERNST GEHRELS, M. D.  
San Francisco

DISCUSSION by Leo Eloesser, M. D., San Francisco;  
Edmund Butler, M. D., San Francisco.

ONE-THIRD of all cancers in men and one-fifth of all cancers in women originate in the stomach. In San Francisco at least three hundred persons die yearly from this disease. The records of the San Francisco Board of Health, of deaths from cancer of the stomach for each year from 1925 to 1929, are as follows:

|      |     |
|------|-----|
| 1925 | 317 |
| 1926 | 296 |
| 1927 | 271 |
| 1928 | 340 |
| 1929 | 319 |

Only 93 of these 319 were explored by operation. I have no way of finding on how many of these patients a radical operation was performed. Undoubtedly the great majority of these ninety-three operations were exploratory laparotomies and gastro-enterostomies. This means that the great majority of patients with gastric cancer run the entire course of the disease without the only treatment that might have been curative—a radical operation.

Two years ago, there appeared in *The Journal of the American Medical Association* a very interesting survey on the average treatment of cancer. The authors showed that a radical operation was done in only five to six per cent of all patients with gastric cancer.

I am convinced that a similar showing would obtain for San Francisco as was found for Detroit. It is hard for a surgeon to understand the therapeutic pessimism of these figures. The statistics of well known clinics show that at least one-third of all gastric cancers are operable.

A surgeon willing to attack the extreme cases can keep the mortality well under 25 per cent. At least 20 per cent have a chance of a five-year cure.

To give the entire picture with these averages as a basis: 100 cases—33 resections; 8 deaths; 25 left; 5 cures. But this does not tell the whole story. The radical operation which removes a large ulcerating cancer gives the patient great relief from pain. Even if the cancer recurs, at least one year of postoperative comfort and well-being can be expected after a resection. The patient who for two years remains free from recurrence of the cancer has a 50 per cent chance of permanent cure.

### REVIEW OF ANSCHUETZ' SURVEY OF ONE THOUSAND CASES

My special subject deals with advanced cases of cancer of the stomach. Anschuetz makes an interesting survey of his material covering one thousand cases. He divides the cancers into three classes.

1. All easily operable tumors with few or no involved glands.

2. Badly adherent tumors, frequently requiring resection of mesocolon, pancreas, liver, and colon.

3. Patients in whom cancerous glands and liver metastases were left behind after a palliative resection had been done. Furthermore, cases in which inspection of the gross specimen showed that the operation had not been radical on the gastric or duodenal line of resection.

This graphic curve of Anschuetz shows what finally became of the cases in the three groups.

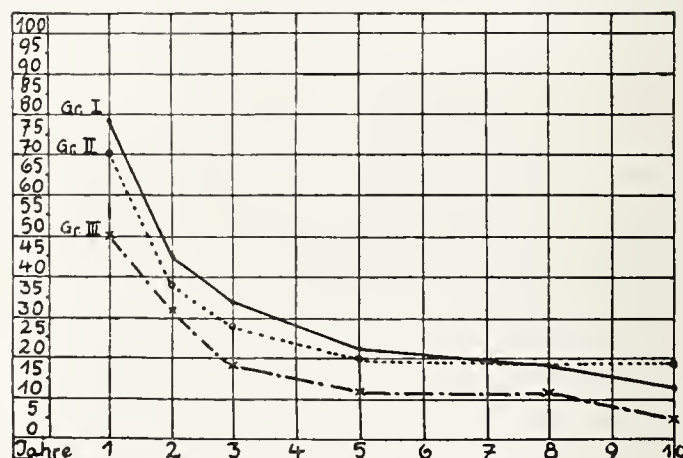


Fig. 1.—Graphic curve of Anschuetz.

The conclusion is inevitable that the results for the large adherent cancers of group two are just as good as for the small favorable cases of group one. Finsterer and others have confirmed these findings. Finsterer has 28 per cent cures for group two and 31 per cent for group one. The comparatively good showing of the group three cases means that some of these cases were not so hopeless as they appeared; that enlarged glands left behind were not cancerous; that resection very close to the tumor had occasionally effected a cure. Balfour of the Mayo Clinic has recently emphasized the fact that there may be a long period of well-being after palliative resection.

In the absence of demonstrable metastases an exploratory operation is nearly always indicated. A large palpable tumor should never counter-indicate exploration. These are often the favorable cases. The nonpalpable ones may be those of the lesser curvature or the diffusely infiltrating types. I wish to emphasize that the x-ray report should not keep the surgeon from exploring. In many instances cases that appear inoperable in the x-ray picture are operable. After opening the abdomen, technical difficulties, such as invasion of the surrounding organs by the tumor, should not hinder a radical operation.

In fact we often do not know at the time of the operation which will be the favorable cases. All attempts to prognosticate from the location of the tumor or the microscopic pathology have failed in cancer of the stomach. Listed among the patients who are cured for over five years, we find just as many cancers that originated from

\* Read before the San Francisco County Medical Society on October 22, 1930.



TABLE 1.—Cases and Operations Reported

|                                | Patients with Cancer of Stomach | Number of Radical Operations | Percentage of Total | Patients with Cancer of Breast | Number of Radical Operations |
|--------------------------------|---------------------------------|------------------------------|---------------------|--------------------------------|------------------------------|
| Detroit .....                  | 717                             | 28                           | 5.5%                | 75                             | 58                           |
| and Middlewestern cities ..... | 1072                            | 67                           | 6.1%                | —                              | —                            |

the lesser curvature as we find cancers of the pylorus; we find all pathological types—scirrhus cancers, soft ulcerating adenocarcinomas, etc.; and also we find among the five-year cures, cases that required colon resection, etc. Fatality to the patient does not depend on the size of the tumor nor the adhesions to surrounding organs. Extensive lymphatic involvement is, however, a bad prognostic symptom.

CLASSIFICATION OF BADLY ADHERENT TUMORS—REQUIRING RESECTION OF ADJACENT STRUCTURES

These findings justify attempts to do radical operations in the very advanced badly adherent tumors which I group as follows:

1. Cancers Above the Middle of the Lesser

ence I warn against any two-stage operation. Reoperation after a short time finds the stomach brittle and edematous. Reoperation after too long a time finds rapidly grown cancer.

2. Cancer with Continuous Growth into Liver. These cases can sometimes be made operable by a wedge-shaped excision of the liver and immediate suturing of the defect. This condition is rare; in Finsterer's material it occurred only six times out of 193 cases.

3. Cancer Invading the Pancreas.—(a) Very dense adhesions, often encountered between the posterior wall of stomach and pancreas, do not interfere with a radical operation. (b) The direct invasion of the gastric cancer into the pancreas is usually considered as contraindicating resection, because of the danger of pancreatic juice

TABLE 2.—Statistics of Well Known Operators

|                      | Total Cases | Percentage of Resections | Mortality    | Five Year Cures |
|----------------------|-------------|--------------------------|--------------|-----------------|
| Mayo .....           | 6000        | 25%                      | 13%          | 25%             |
| Payr .....           | 475         | 30%                      | 30%          | 20%             |
| Von Eiselsberg ..... | 457         | 36%                      | 25%          | 27%             |
| Anschuetz .....      | 926         | 52%                      | Group I—15%  | Group I—22%     |
|                      |             |                          | Group II—50% | Group II—30%    |
| Finsterer .....      | 797         | 65%                      | Group I—7%   | Group I—31%     |
|                      |             |                          | Group II—37% | Group II—28%    |

Curvature.—These are frequently regarded inoperable, but are sometimes good cases for radical operation; as, for instance, a case of large polypous cancer.

Outline of Technique: For the advanced cases my incision is more often oblique below the left costal margin than a midline incision. I use the Billroth II method in the generally accepted Polya modification. I use a long loop of jejunum, anterior to the colon with an entero-anastomosis more often than the short retrocolic procedure. I usually do a partial occlusion of the gastric stump at the lesser curvature, and place the distal part of the jejunum at the lesser curvature in the antecolic technique. This I consider, mechanically, the most satisfactory procedure. From my experi-

causing leakage of the suture line and subsequent peritonitis.

In view of Finsterer's results, it is doubtful whether this view can be upheld. In his forty-three cases, involving resection of the pancreas, there were only nine deaths—20 per cent mortality.

4. Cases with Extensive Infiltration of Transverse Mesocolon.—This is the most common complication. In the majority of these cases it is possible to separate the middle colic artery from the tumor, so that this complication does not preclude a radical operation.

5. Cases Requiring Resection of the Transverse Colon in Addition to the Resection of the Stomach.—This necessity arises, owing to in-

TABLE 3.—Results of Operation in Groups 1, 2, and 3

| First Postoperative Year                                                             | Second Postoperative Year                                          | Fifth Postoperative Year                                                                |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Group 1—Only 20 per cent died.<br>Group 2—A heavy loss.<br>Group 3—50 per cent died. | Rapid decline.<br>Rapid decline.<br>Remain surprisingly resistant. | 21% still alive<br>20% still alive<br>12% still alive { Notice approximation of curves. |

vasion of the transverse mesocolon by the tumor. In order to perform a radical operation, ligation of the middle colic artery becomes necessary. The high mortality of these patients can be reduced by more careful selection. One certain type of cancer especially justifies this operation, namely, the large polypous tumor of the greater curvature which has invaded the lesser mesocolon or the colon itself. These tumors are less malignant. Frequently they do not invade the regional glands, or lead to distant metastases.

In cases involving close proximity of the middle colic artery to the tumor, I prefer to free the artery rather than be compelled to do a stomach-colon resection. Finsterer also advises heroic attempts to free the colic artery.

**Technique of the Combined Stomach-Colon Resection:** This presents very interesting problems. One of these is whether to excise the large tumor of the stomach in one piece with the colon, or do the stomach resection first and then the colon resection. If only a small branch of colic artery has been sacrificed it will be often advisable to finish the stomach operation as usual, and then investigate the blood supply of the colon. The rule to follow, however, is, if the trunk or one of the major branches of the middle colic artery has been ligated in dissecting the tumor out of the mesocolon, the transverse colon is in danger of gangrene and it is better to resect stomach and colon as one. This time-saving procedure is more radical. Another technical problem involved is the question of a one-stage or two-stage operation on the transverse colon.

The two-stage operation of the Miculicz type is the method of choice if the stomach operation has been very difficult and we want to finish quickly.

The one-stage resection again has different possibilities. If only a short portion of the colon has been resected, an end-to-end union without tension may be possible, but when the blood supply of large portions of the colon has been cut off, it is not possible to unite the cut ends of the colon without tension. In these cases the one-stage operation requires either a complete resection including ascending colon and cecum with the implantation of the ileum into the remaining transverse colon, or an operation of partial or total colonic exclusion. These exclusion operations have certain dangers, namely, in the partial exclusion, retrograde filling with final perforation.

The average mortality of these extensive operations has been compiled by Mau as 55 per cent from seventy-five cases. Of the twenty-four who survived the operation and could be followed up, there were, however, seven cures over five years, that is 29 per cent of those who survived the operation.

**6. Cases of Invasion of the Right Wall of the Esophagus.**—Eighteen cases were listed in Finsterer's material with eight deaths, a 44 per cent mortality. In these cases Finsterer extended the excision of tissue into the esophagus, doing par-

tial longitudinal resection of the wall of the esophagus. He folded the fundus of the stomach around the esophagus for protection of the suture line.

**7. Cancer of the Cardiac End of the Stomach.** These present the most difficult problem of all. They are not infrequent, being about 10 per cent of all gastric cancers. A great majority of these are absolutely inoperable. Only nine successful cases of resection of the cardia have been done. These nine cases survived out of a total number of thirty-one that could be compiled by Borchers, making a mortality of 71 per cent. The mortality is probably much higher as undoubtedly hundreds of unsuccessful attempts have not been published. The high mortality is due to the great difficulty in safely anastomosing the esophagus to the stomach. The late results of these nine cases which survived are interesting. One case of Peugniez' was still alive and well twelve years after operation. Five others were well after four or more years. All of these cases were approached by laparotomy. In all the ingenious attempts to attack a cancer of the cardia from the transthoracic approach, from the posterior mediastinum or transpleurally, the mortality has been greater. Only two have survived this approach—patients of Zaijer and Hedblom. In these two operations the result was very unsatisfactory on account of persisting gastric and esophageal fistulas, while in the above nine instances the patients were really well.

The result of this survey is that the resection of the cardia should only be attempted in cases where the operation can be done by laparotomy. This limits the field to those cases where only a very short area of the esophagus is involved by the cancer. Only a few centimeters of esophagus can be successfully resected from the abdominal route. The maximum has been four centimeters. Primary cancers of the esophagus should be entirely excluded from any attempt at a removal by laparotomy.

The type of cancer that lends itself best to this operation is the polypous cancer near the cardia. In a case of this type in a man fifty-eight years old, which I had recently, I lost the patient on the fourth day from bilateral bronchopneumonia. I employed the following technique:

**Technique (Main Points):** 1. Marwedel incision, *i. e.*, incision along costal margin with mobilization of the latter by cutting of the seventh, eighth, and ninth costal cartilages laterally and mesially. This incision I have also recently used twice for operations of diaphragmatic hernia. It gives the best access to the cardia.

2. Complete severing of all connections and mobilizing the lower esophagus.

3. The stomach is divided first at the pyloric end. The upper stump is then used for traction while completing at least the first posterior suture line connecting the esophagus to the pyloric stump of the stomach.



4. The most important and difficult part of the operation is the anastomosis. The essential thing is to invaginate as long a piece of the esophagus as possible into a cuff of stomach wall.

5. Finally the stump of the stomach has to be sutured to the diaphragm to avoid tension on the anastomosis. This is also very important.

8. *Tumors Which Require Removal of the Entire Stomach.*—Total gastrectomy is a less dangerous operation than the resection of the cardia. Only nine cases have survived resection of the cardia, while thirty-one have survived total gastrectomy. The resection of the cardia involves more of an esophageal resection. In a total resection, one may even be fortunate to have a peritoneal covering of the lower esophagus for anastomosis. The main indication for total gastrectomy has been the so-called "leather bottle" stomach, a form of cancer causing shrinkage of the stomach.

Total removal in the strict sense means that, in the specimen, part of the esophagus, as well as duodenum, can be demonstrated. Finney and Rienhoff have recently presented a complete study of these cases from the entire literature. They had five cases of their own of total gastrectomy and compiled 122 additional. Only one-half of these were total in the above sense. The other half were subtotal. The subtotal were limited to cases where not more than three centimeters of the stomach was left. Of the two groups the total gastrectomy is a far more serious operation. It involves anastomosis of the esophagus. This difference is seen clearly in Finney's analysis:

| TABLE 4.— <i>Finney's Paralysis</i> |              |           |                         |
|-------------------------------------|--------------|-----------|-------------------------|
|                                     | No. of Cases | Mortality | Greatest Length of Life |
| Total .....                         | 67           | 54%       | 4 yrs. 2 mos.           |
| Subtotal .....                      | 60           | 25%       | 25 yrs.                 |

The postoperative course has interested physiologists since the time of Czerny's first total gastrectomy in dogs in 1882 and Schlatter's first success in a human being in 1897. Finney reports that in all these cases of total gastrectomy there has been no complaint of hunger pain nor any sensation either of emptiness or fullness in the region of the stomach. This is an optimistic view. It is true that the dilatation of the lower end of the esophagus and the upper portion of the duodenum make up for the absence of the stomach as a reservoir. The digestion of these patients seems in no way inferior. They are apparently well nourished and in fairly good health. The action of the pepsin and hydrochloric acid is taken over by the trypsin of the pancreas. Digestion of proteins, fats, and carbohydrates have not been seriously affected. The production of severe anemia by total gastrectomy appears to be an exceptional consequence. In 1907 Moynihan reported a case of total gastrectomy. The

patient died after three years and seven months. The autopsy showed nothing but a profound anemia. No recurrence of cancer.

9. *Operation for Recurrence.*—This will be rarely indicated. If at all, one will attempt this in a case where a patient has a local recurrence after a long period of well-being, and is in good general condition. Only a few operations for recurrence have been reported. In one case of Persson's of Stockholm the patient was subjected to resection for cancer twice within an interval of three years. He was still alive and well three years after the second operation.

10. *Indications in Advanced Age.*—I was confronted with the problem of advanced age recently. My patient, with a large cancer of the lesser curvature, was seventy-two years old. I removed more than one-half of the stomach and was fortunate in having a smooth recovery. This was three months ago. He is doing well and within four pounds of his normal weight. Horsley has recently published five cases in patients over seventy with only one death. Finsterer has had twenty-one cases above seventy with a surprisingly low mortality. I think that advanced age itself should not be a contraindication to radical cancer surgery. In older people, cancer is apt to be less malignant. Chances of permanent cure are better.

The question arises whether it is justifiable to do these extreme operations in view of the high mortality and the small percentage of permanent cures. For those of us who frequently do these operations this question comes up again and again. Before closing an abdomen after an exploratory laparotomy, it is well to remember that without any attempt at removal, the final mortality is 100 per cent. Very soon the patient begins questioning about the operation, and realizes we failed to do anything. After an exploratory laparotomy the average duration of life is three months. The patient has very little to lose in choosing operation.

After they have been fully informed of the seriousness of an operation of this kind, I think the patient's relatives should choose whichever course they want.

One question has to be considered. Will a high mortality so frighten the general public as to scare away early favorable cases? This is a serious warning to stay within reasonable limits. My own experience proves that every cancer patient that remains cured for a long time is an efficient booster for surgical treatment of cancer, offsetting the effect of cases that have died and been forgotten.

By attacking these advanced cases, at present, only occasional successes are possible. In order to achieve a higher average of surgical cures in gastric cancer, early diagnosis is imperative. Complete, conscientious surgery in radical operation for the favorable less-advanced cases is also imperative.

## DISCUSSION

LEO ELOESSER, M. D. (490 Post Street, San Francisco).—I agree completely with Doctor Gehrels' opinion. The instances can be very exceptional in which a patient and his relatives, once they have made up their minds to have his abdomen opened, would not prefer to take any reasonable operative risk in the hope of his being cured, rather than have him undergo the misery of an operation for nothing or for the short respite that a palliative operation affords. How far the surgeon will go depends upon his technical ability and his willingness to bear the onus of the high mortality that a higher percentage of cures entails.

The statistics cited by Doctor Gehrels may not give a perfectly true picture, for figures taken from municipal mortality records are not entirely comparable to the figures of surgical clinics to which patients go for the express purpose of being operated upon. Still the low percentage of resections, not only in city records but in the Mayo Clinic, is surprising.

I agree also with Doctor Gehrels in warning against two-stage operations in stomach cancer; too often a cancer that was operable at the first stage is found to be inoperable at the second.

A careful physical examination should decide for or against operation; if patients were excluded from operation who have demonstrable distant metastases, such as supraclavicular glands, umbilical metastases, nodules in the peritoneum of the Douglas pouch, bony metastases, and whose obstruction is not sufficient to indicate palliative gastro-enterostomy, both the patient and the surgeon's reputation would be helped.

This salesman of sixty-three, who is kind enough to appear tonight, was referred by Dr. B. J. Hagan with a huge movable abdominal mass. He was very anemic and had a tabes and an aortitis besides. He was operated upon on January 21, 1930; a large cancer of the greater curvature with a crater measuring two inches across was found. The gastrocolic ligament and the transverse colon were invaded. A large portion of the stomach, the mesocolon, and the transverse colon were resected. (Demonstration of specimen.) The man shows no evidence of recurrence, and is working. As Doctor Gehrels remarked, large, seemingly hopeless cancers are not infrequently resectable and remain cured.

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EDMUND BUTLER, M. D. (490 Post Street, San Francisco).—The list of deaths from cancer of the stomach in the city and county of San Francisco or any other municipality contain many cases that are not proven by exploratory laparotomy or autopsy, consequently an error of at least 20 per cent is undoubtedly present. I am surprised to learn so few patients with gastric cancer are operated upon.

I agree fully in every detail with Doctor Gehrels. The skilled surgeon should not be influenced by the high mortality following extensive resection, but be elated over the 12 to 20 per cent of five-year cures.

Finsterer routinely removes the greater omentum in all operations for abdominal neoplasms, hoping to remove any early implants which are more apt to lodge in this structure.

The two points in gastro-intestinal surgery that will bear stressing here are: First, the blood supply of the structures remaining should be sufficient to prevent sloughing. Second, the structures must be sutured without tension.

The permission to do extensive surgery must be had from the family. If relatives understand the import of the procedures, no criticism is forthcoming if sudden death should occur.

There is no statement in Doctor Gehrels' essay that would sanction extensive surgery where the general condition of the patient or the presence of irremovable metastasis precludes success.

## THE PROBLEM OF CHRONIC ARTHRITIS\*

By ERNEST H. FALCONER, M. D.

San Francisco

AT each annual meeting it is highly important to seek new light, fresh inspiration, and impetus in relation to the problems that bear heavily on us in our daily work. The problem of chronic arthritis has worried and harassed most of us, I am sure. Many members of the profession have become so casual in their efforts to solve this problem that sufferers from arthritis have turned by preference to osteopaths, chiropractors, physiotherapists, and hydrotherapists for help. Are we justified in trying to guide these sufferers back into the fold? Has science advanced far enough along solid ground to offer the chronic arthritic any definite assurance of help? It is perhaps true that nothing remarkable in the field of specific therapy has been brought forth in the last decade. Enthusiasm for vaccine therapy has been spasmodic and usually short-lived. Much groundwork of a careful nature has been quietly laid during the past ten years, and we are in a position today to survey a wide range of data bearing on this problem. A few workers in this country, outstanding among them Ralph Pemberton,<sup>1</sup> have viewed the disease of chronic arthritis in its entirety, conducting research and collecting data that bears on the problem from several different angles, until today we are beginning to envisage the disease as one with an underlying constitutional background and not a local disease of the joints, with its origin in focal infection. For the past fifteen years our attention has been almost entirely directed to focal infection, intensive research has been carried out with the endeavor to solve the problem through the finding of a specific organism which, through toxins or allergic properties, could be shown to cause all the manifestations of chronic arthritis. While this work has been of value it has fallen far short of our hopes for it. That infection is present in chronic arthritis and that it may play a part in the aggravation of symptoms seems to rest on sound evidence, but that these organisms may invade tissues and joints whose vitality becomes lowered from poor circulation and general systemic depletion, part of the picture of the general systemic background of arthritis, seems as logical as to impart to them the primary etiological rôle.

## CLASSIFICATION—ATROPHIC AND HYPERTROPHIC TYPES

There has been too much confusion in attempted classification of arthritis. For practical purposes it is sufficient to recognize two main types of the disease, the atrophic and the hypertrophic type. These two main types can be readily separated by clinical and radiological examination. The atrophic variety affects women rather more frequently than men; it is preceded by a long period, often years of fatigue, physical strain, and mental worries. The individual is de-

\* Chairman's address, General Medicine Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.



pleted, blood pressure low, extremities cold and cyanotic, weakness is pronounced, constipation, and at times nausea is present. This type of arthritis frequently occurs on an inherited background. The hypertrophic variety is associated more with advancing years, especially after forty years of age. It represents slowly advancing degenerative changes due to underlying metabolic causes. This is the type that occasions so much disability and economic loss in industrial compensation cases. Here calcium is deposited in excess, in contradistinction to the loss of calcium, the thinning and bony atrophy characteristic of the atrophic variety. In the hypertrophic type the prognosis is much better than in this latter variety, hence the necessity for a clear conception of the type one is dealing with.

During the past year I had the privilege of studying in an arthritic clinic, at the Peter Bent Brigham Hospital, in Boston, under Doctors Hall and Monroe. It was very obvious at once, in reading the histories and examining the patients reporting at the clinic, that it is the atrophic type of the disease that causes patients to seek medical help, largely on account of the deformities and joint pain. Students of the disease are soon able to recognize the types of individuals likely to suffer from chronic arthritis and in these much can be done to prevent and check the progress of the disease. In the arthritic clinic mentioned the relationship of disturbances of the colon to arthritis was the subject of special study under the supervision of Dr. Robert Monroe.<sup>2</sup> Similar studies have been carried on by Doctors Fletcher and Dickson<sup>3</sup> of Toronto. The tone and function of the colon improves considerably under a diet low in carbohydrates and rich in vitamins. The outlines and position of the colon changes under such a regimen, so that subsequent films compared with those taken at the beginning of treatment show marked changes toward what we know as a normal type of colon. Cod-liver oil, yeast concentrates, and orange juice furnish an abundant source of vitamins for the diet. Cutting down the carbohydrates does away with discomfort from fermentation. Studies in calcium absorption and metabolism may help to explain some of the bony changes in both types of arthritis, but especially the atrophic type. Studies on the circulation in chronic arthritis have shown that poor circulation due to low blood pressure, poor vasomotor tone, and constriction of capillary bed are very important factors in bringing about the joint pathology in chronic arthritis. Many of these patients have so much vasoconstriction of the extremities that the thermocouple indicates their reaction to the temperature of their environment to be that of the "cold blooded" invertebrate animals. The temperature of their extremities is that of the room in which they happen to be, hence their extreme sensitivity to cold. Surgery of the sympathetics controlling the blood supply to the extremities, as carried out at the Mayo clinics through the studies of Rowntree<sup>4</sup> and his associates, has greatly helped some apparently hopeless arthritics. In properly selected cases this promises to be a

very helpful measure. The experiments of Pemberton in ligating the blood supply to the patella in animals indicates that the hypertrophic type of arthritis is readily produced experimentally through control of the blood supply.

These brief outlines of some of the recent approaches to the problem will serve to direct our thought toward a somewhat broader viewpoint of chronic arthritis. Even granting that focal infection or, on the other hand, blood-stream infection and joint invasion, as found by Cecil, play an important etiological rôle, is it not logical to believe that rest and building up the resistance through hygienic-dietetic measures may be quite as efficient in helping to remove the infection as surgical removal of foci of infection. If the organisms are in the tissues about the involved joints, as Cecil<sup>5</sup> contends, removal of foci of infection can only accomplish a limited objective. In pulmonary tuberculosis, another type of chronic disease, we recognize the tubercle bacillus as the etiological factor, but our treatment is directed not toward specifics for killing the tubercle bacillus, but to general measures for building up the patient's resistance. One obstacle to success in the treatment of chronic arthritis in the past has been that we have not indicated to the patient that time is an important factor in the treatment as it is in tuberculosis.

As many of you know, there has been a considerable impetus to the study of chronic arthritis in European clinics in the past few years and an association for the study and control of rheumatism is in existence. There is now an American committee with a representative membership whose activities are educational in trying to coordinate and stimulate interest in study, treatment and control of chronic arthritis. At the 1929 meeting of the committee it gave as its concepts of the disease chronic rheumatism or arthritis the following:

CONCEPT OF COMMITTEE CONCERNING THE  
DISEASE COMMONLY CALLED CHRONIC  
RHEUMATISM OR ARTHRITIS

1. The disease chronic arthritis, prevalent in all temperate zones, represents one of the most important, if not the most important, of existing social and industrial handicaps.

2. The committee conceives of the disease as a generalized disease with joint manifestations. Certain prodromes may be recognized and it is of vital importance to the body politic that they be recognized.

3. It is the opinion of the committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The committee inclines to the belief that any one of these factors or certain combinations of these factors, under appropriate circumstances, may basically underlie the onset of the disease.

4. The committee feels it of vital importance that the medical profession have its conscience awakened to the methods of treatment of proved

value which are at present at its disposal. The committee feels that the lay public, through their medical advisers and through the public press, should also be made aware of the danger to their efficiency and happiness which the inroads of the disease imminently threaten.

5. In the light of the foregoing considerations the committee purposes to broadcast, as widely as possible, both to the profession and to the public, its concept of the nature of the types of arthritis included under the heading chronic rheumatism, its belief as to the probable predisposing and exciting causes of the disease, and the knowledge which the committee possesses or may acquire as to the most efficient methods of treatment.

6. It is the belief of the committee that optimism, rather than pessimism, should dominate the attitude of the profession toward this problem. In most cases treatment should represent a combination of the various coördinated measures of therapy rather than one single procedure. Experience leads to the belief that under such circumstances an attitude of optimism toward the control of the disease is justified.

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### THERAPEUTIC IRRADIATION OF THE OVARIES\*

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THIS paper takes up the therapeutic action of roentgen rays and of radium when directed against the ovaries of women suffering from benign gynecological affections, as well as from diseases, remote from the sexual organs *per se*, but which are influenced by the ovaries. The opinions here presented are based on personal experience with some sixty patients.

#### GENERAL CONSIDERATIONS

The ovary, it may be said without fear of contradiction, occupies a dominant position in the female organism, even if we exclude entirely its function as the organ of reproduction. Its endocrine products, working harmoniously with those

of other endocrine glands, are primarily responsible for the development of all the sexual characteristics of women. Upon the ovarian function depends the menstrual cycle, and the growth, and secretory, and other activities of the genital tract proper. The hormones of the ovary also influence such organs as the breasts, the thyroid gland and the pituitary gland, both in health and disease. It is also a fact that the functioning ovaries arrogate to themselves a great proportion of the general bodily energies. This is as it should be in health, but in disease it may prove a serious drain on the disease combating powers of the organism.<sup>3, 4, 23</sup>

Since the ovarian activity has such a profound effect upon the healthy genital tract and body generally, it is readily understood that this function may become quite deleterious, if the genital tract be diseased or ovarian function itself perverted. It is quite probable that such a perverted activity is the cause of menorrhagia, the so-called "benign uterine bleeding." Similarly, according to some, a perverted hormone of the ovary may stimulate to growth fibromyoma of the uterus.

If it is possible to eliminate either temporarily or permanently the ovarian function or to modify it, one may infer that a favorable therapeutic action will have been performed in many gynecologic and general affections. Such a therapeutic action may be accomplished by irradiation of the ovaries by means of roentgen and radium radiation.

The writer believes the action of roentgen ray and radium upon the ovary to be essentially similar. The effect that either of these agents may have upon the normal or pathologic tissues of the genital tract apart from the ovaries will be discussed later.

The epithelial constituents of the ovary are exceeded in sensitivity to radiation only by the lymphatic tissues and their pathological derivatives. In order to explain certain phenomena it may be also assumed that these epithelial constituents of the ovary vary among themselves in sensitivity. Thus the ripe follicles and the ripening ones are destroyed by a certain amount of radiation, whereas the primordial follicles are more resistant to the same amount of radiation and these latter may ultimately, after regaining their vitality, reestablish the function of the ovary.<sup>3</sup> This observation is utilized therapeutically where it is *not* desirable to permanently eliminate ovarian activity. Seitz and Wintz state that 28 per cent of their skin unit dose, absorbed by the ovary, is necessary to obtain such a temporary "menostasis," or "menolipsis" as they call it.<sup>5</sup> Kadisch has published a table from which the necessary dose has been figured out by Neeff for various ages in "R" (German) units.<sup>4</sup> Recently the writer acquired a "mecapion," an integrating recording dosimeter, made in Austria, which promises much for the future.\*

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\* Read before the Radiological Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

\* The construction of the mecapion makes it impossible to insert the ionization chamber into the body cavities, such as the vagina. Since writing the above the writer has convinced himself that phantom measurements are not sufficiently accurate and a second dosimeter which can be inserted into the vagina should be used for such delicate work.



If radium is to be used for such a purpose a maximum of 800-milligram hours should not be exceeded, the radium being placed into the cavity of the uterus and filtered with two millimeters of brass and the usual rubber tubing.<sup>1</sup> Not infrequently the returning menses after such treatment will be normal.

To produce a permanent amenorrhea by destruction of all the epithelial constituents of the ovary about 35 to 40 per cent of a skin unit dose must necessarily be absorbed, of course, by the ovary.<sup>4, 5</sup> The writer has found by phantom measurements that 350 to 400 "R" (international) are necessary. The skin dose naturally will vary with the thickness of the patient, but using two large ports, one may as a rule remain well below an erythema dose. The half value layer in water of the x-radiation which the writer uses is 5.6 centimeters. In order to obtain a prompt result the amount of radiation regarded as necessary should be given as rapidly as is consistent with the patient's general well-being. It is desirable to give the treatment in the first half of the intermenstruum, since the menses may then stop promptly, whereas irradiation in the second half makes another period inevitable, because the hormones which elicit menstruation have then already passed into the blood.<sup>3, 5</sup>

Again, one may have given a correct dose at a favorable time and yet two, or even occasionally three, periods may take place before final and permanent cessation without further radiation. The writer has observed this phenomenon repeatedly, and it may be explained by the assumption that some of the ripening follicles are still able to mature and thereby elicit a menstrual cycle before they die.

The dose of radium given intra-uterinely to accomplish the same purpose must be from 1200 to 1800-milligram hours.<sup>1</sup>

Since, in younger women, especially when child-bearing is probable, it usually is not desirable to abolish the function of the ovaries permanently; it is necessary, if radiation therapy be used at all, to be aware of possible consequences should postradiation pregnancy occur. Let me say, before I proceed, that temporary elimination of ovarian function by radiation is practiced extensively in Europe, using the roentgen ray, whereas, as far as I have observed, the same thing is done in America with radium. All those who advocate intra-uterine dose of radium of less than 800-milligram hours are practicing this form of therapy and must take a stand in the question of injury of offspring by their therapeutic endeavors.

A review of the literature concerning this phase of the subject in hand brings me to the conclusion that the matter is still in suspense. The results of animal experiments, done usually on small mammals or on insects, vary from observation of permanent developmental abnormalities, which are inherited as recessive Mendelian characteristics for several generations, to appar-

ent absence of any injury which is also observed for several generations.<sup>15, 16, 24, 25</sup> Animal experiments, it is clear, will not solve the question with finality. Accordingly the statistical study of the incidence of developmental abnormalities in the offspring of radiated women has begun and this must then be compared with the incidence of abnormalities in the offspring of normal individuals. Then, and only then, can this important question be answered. For the present caution in the matter of temporary sterilization of women who might afterward conceive must be observed.

If conception of a radiated ovum occurs before menostasis has taken place, the product of conception usually dies and is either spontaneously aborted or must be removed. However, if death does not take place and the pregnancy goes to term, stillbirth or developmental abnormalities are likely. Less great is the danger of injury to offspring if conception takes place when a radiated ovary has returned to its function after a shorter or longer lapse of time. Such ova are apt to have recovered their vitality completely and show no evidence of the radiation insult received in the children derived from them.

An entirely different and much more serious proposition is the, usually quite accidental, irradiation of the already fertilized ovum, the embryo or fetus. So serious is the damage caused by radiation apt to be that nearly all writers on the subject advise termination of pregnancy. If radiation takes place during the first three months, the embryo usually dies, but if later, then it may come to term and show more or less serious developmental defects.<sup>13, 25</sup>

Personally the writer has been fortunate enough to escape experiences in the matter of injury to offspring, but is holding the possibility constantly in mind and acts accordingly and so advises his patients.

Pregnancy is, therefore, an absolute contraindication to radiation treatment unless one is dealing with carcinoma of the cervix, and the discussion of this is not within the scope of this essay.

#### SPECIAL PHASES

So much for general considerations in the therapeutic irradiation of the ovary. The particular and clinical phases of the subject may now be taken up with greater brevity.

*Disease Groups to Be Considered.*—Types of gynecological and other diseases which may be expected to be benefited by temporary or permanent elimination of the ovarian function will now be enumerated and discussed. Such are:

1. Benign uterine bleeding characterized by menorrhagia without any or little demonstrable organic pathology of the uterus.
2. Painful menstruation and association of the periods with more or less severe general symptoms.
3. Fibromyoma uteri, selected cases, the criteria of such selection to be discussed below.

4. Chronic infectious diseases of the uterus and adnexa.

5. Diseases outside of the genital tract, but aggravated in their course by the continuation of the menstrual cycle.

1. *Benign Uterine Hemorrhage*.—Benign uterine hemorrhage is characterized by increased menstrual flow both as to quantity as well as duration and frequency of the period. As a rule uterine pathology is not demonstrable and the pathology of the mucosa, when present, is usually of minor character.<sup>22</sup> The cause of the hemorrhages is accordingly sought in the ovaries and is probably a disturbance in their hormonal control of the process of menstruation. Therapeutic irradiation of the ovaries with a view of eliminating temporarily or permanently their function, is the treatment of election in such cases. Since the majority of these patients are in the climacteric or preclimacteric age, complete elimination of the ovarian function may be done without hesitation. Roentgen radiation is the agent of my choice for reasons of safety and economy, but in patients where exsanguination has progressed to such a degree so as to make immediate cessation of the hemorrhage imperative, radium inserted into the cavity of the uterus is to be preferred since it accomplishes this end immediately, while roentgen radiation does not.<sup>20, 22</sup>

In younger women when radiation treatment is to be used at all, temporary menostasis is recommended and may be accomplished by careful dosimetry, and perhaps in the majority of cases Kadisch's tables can here be especially valuable.

The good results in patients with benign uterine hemorrhage, in my experience measure up to a 100 per cent standard, provided the proper agent has been selected and that dosage has been adequate.

As *contraindications* to radiation therapy may be considered:

Uncertainty of the diagnosis regarding the benign nature of the hemorrhage. This uncertainty may be cleared by a diagnostic curettement and such curettement is demanded in all cases by many gynecologists. In my opinion, for which I can quote weighty supporting opinions, it is certainly not necessary or desirable in the majority of such patients, provided an otherwise competent gynecological examination has been made and the diagnosis is reasonably certain. Of course, when radium is used a curettement may be done as a matter of routine.<sup>2, 8, 11</sup>

Youth of the patient. This contraindication depends chiefly upon the stand one takes in regard to the matter of radiation injury to possible offspring, since one would attempt to produce only a temporary menostasis and not eliminate the ovaries permanently. The writer has personally been conservative in this regard in the past and has excluded patients who were much below forty years of age from treatment.

Association of the uterine hemorrhage with other diseases of the genitalia which in them-

selves require surgical treatment is another important contraindication to the radiation method of elimination of the ovarian function.

Extremely neurotic or psychopathic individuals might form a further class in whom menostasis is contraindicated, since the cessation of the periods is apt to aggravate the neuropsychopathic symptoms. Epilepsy, under certain conditions, and migraine are exceptions.

Hypertension. The menopause in hypertension is apt to be followed by further increase in blood pressure and liability to apoplexy. I have two such patients in whom apoplectic strokes took place after cessation of the menses. Of course, such patients are poor risks no matter what is done.

Artificial menopausal symptoms in general, as far as I have been able to ascertain from my patients, are less, or at least not worse, than those of the natural menopause. It has been my experience that the women usually consider themselves, and are actually, in better health and spirits after treatment than before.

2. *Painful Menstruation*.—Painful menstruation and menstruation associated with systemic symptoms, such as migraine, referable particularly to the nervous system, are not uncommon and about 25 per cent of all my patients belong to this class. If the fortieth year has been reached, radiation menopause by means of the x-ray is a justifiable procedure. The results are usually extremely gratifying, and the writer knows of no more grateful patients than these women who have been freed permanently of their monthly tortures. Most of the contraindications to radiation treatment given under uterine hemorrhage should be considered also in treating these cases.

3. *Fibromyoma Uteri*.—It has long been a matter of observation that tumors of this type are stimulated to growth by the continued function of the ovary, and this no matter what their primary causes may be.<sup>3, 4</sup> Accordingly, if treatment be indicated here at all, it is logical to direct radiation therapy to the ovaries with a view of permanently abolishing the ovarian function. In making this statement the writer does not wish to deny the fact that both radium and roentgen rays also exert a direct action on the tumor tissue and probably on its vascular supply, with a tendency to produce shrinkage, but it seems to him desirable to look upon the ovarian hormones as a dominant factor, and to make the elimination of their activity a condition *sine qua non*. This view is by no means universally accepted, and the Italian school of gynecological radiation therapists, headed by Spinelli of Naples, seeks by all means to protect the ovaries while radiation treatment is directed to the fibromyoma purely.<sup>6, 7, 10</sup> The French school seeks to eliminate the ovarian function as well as to utilize the direct action of radiation of the myomata, while the German school, insisting that the elimination



of the ovarian activity is the only essential thing, tries to accomplish permanent menostasis in a single series of radiation, and subsequently leaves the tumor to shrink without further therapeutic interference.<sup>9, 11, 12</sup> In America, as a rule, the French idea is followed,<sup>14</sup> but our gynecologists, with a few notable exceptions, are so under the spell of surgery that they will not usually allow even most suitable cases to be treated by radiation. In Europe, on the other hand, it has been the gynecologists to whom the honor largely belongs of having developed radiation therapy in general.

The writer in the majority of his cases, such as small interstitial fibromata, has followed the idea of prompt elimination of ovarian function by a single treatment or through a limited series of treatments. More recently, in some quite large myomata, the principle that radiation has a direct action on the tumor has been applied in several series of radiation treatments that have been given after the radiation menopause had set in, and with gratifying results. In two cases tumors of the size of six to seven months' pregnancy shrank within eight months to the size of grapefruits. This was done with the roentgen ray. For such large tumors radium is not suitable, used intra-uterinely, but radium may be used with advantage in such as are not larger than three months' pregnancy, especially when prompt hemostasis is essential.

The criteria for selection of cases of fibromyoma uteri as suitable for radiation treatment may be best covered, perhaps, by enumerating the usual *contraindications* and commenting upon them.<sup>1, 3, 4</sup> Such are:

Youth of patient. In all cases where it is desirable to preserve the endocrine and reproductive function of the ovary, radiation treatment is as a rule contraindicated and surgery is to be preferred. Youth, of course, is a general contraindication to pelvic radiotherapy.

Myomata that cause acute or serious pressure symptoms and where speedy relief is necessary should be referred to the surgeon. Chronic and mild pressure symptoms, on the other hand, may be treated by radiation, especially since surgical intervention can always be done, should it become necessary.

Degeneration of myomata, clinically manifest, is always contraindication of radiation treatment.

Association of carcinoma of the body of the uterus or of the adnexa with fibromyoma of the uterus are best treated surgically. However, I cannot see why preoperative roentgen radiation or radium or both would not be of distinct benefit, in fact, indicated. Cervix carcinoma, of course, is best treated with radium rather than surgery.

Pedunculated myomata, whether they lie in submucous or subserous tissues, are always a contraindication to radiation, but the fact that a tumor lies in the submucous or subserous tissue, not necessarily so. Undoubtedly many such cases are treated undiagnosed and with success.

Myomata which are associated with infectious disease of the pelvic organs are contraindications to radiation therapy only if the infection is acute. Otherwise they may be treated, but with a cautious and specially modified technique.<sup>3, 4, 18</sup>

Large myomata, such as reach above the umbilicus, are usually mentioned as being unsuitable to radiation treatment. This holds true for the intra-uterine use of radium, but roentgen radiation may be used with good hopes of success.

Sarcomatous degeneration of myomata. Here again, in my opinion, vigorous preoperative radiation therapy is not only not contraindicated, but actually indicated, since these sarcomata are quite sensitive to radiation.<sup>5</sup>

The association of malignant tumors with fibroma of the womb may be here discussed since this is not infrequently brought up as an argument against radiation therapy.

Sarcomatous degeneration of myomata, according to revised statistics of various American and European clinics, are exceedingly rare complications; in fact, only 0.3 to 0.5 per cent of all uteri removed show such pathologic changes. Accordingly, Ewing terms the use of it as an argument against radiation, "mere sophistry"; and John Clark also has taken a strong stand against it.<sup>1, 2</sup> Likewise, carcinoma of the body of the uterus is a rare disease, and, if suspected, the question can usually be decided by a diagnostic curettage preceding radiation. Careful observation after radiation is an excellent way of determining whether the primary diagnosis has been correct. With a small private or semiprivate clientele, this is, of course, more reliable than that with the large material of a big clinic.

An interesting question is whether the development of malignant tumors is more common in a uterus which has been subjected to radiation than in one which has not. The conclusions of Kupferberg, Corscaden and Stout are, that this occurrence is far too rare to be used as a successful argument against radiation.

All uncomplicated fibromyomata of the uterus which for some reason or other need treatment—the majority of fibroids, perhaps, do not—are favorable for radiation therapy. Especially so when the patient is near the menopausal age, suffers from some general disease which makes her a poor surgical risk, when the diagnosis is clear and no elaborate gynecological technique is required for clarification.<sup>17, 21</sup>

The results, as far as eliminating the most serious symptom, hemorrhage, is concerned, as a rule are always successful. Complete involution of small fibromata may be expected in 85 to 90 per cent and in large tumors in about 50 per cent of the cases. All tumors involute more or less markedly. The process as a rule is slow, but the involution will continue for as long as eighteen months after treatment.

4. *Chronic Infections of the Uterus and Adnexa.*—Chronic infectious disease, especially gonorrheal infection of the female genital tract, may be favorably influenced by roentgen-ray therapy.

The intra-uterine use of radium, with its attendant manipulation, is dangerous since it might result in lighting up the infection to a serious degree.<sup>1,2</sup> The guiding principle in this treatment is the observation that the periodic congestion of the pelvic organs, incident to continued menstruation, adversely affects the infectious process. Therefore, if it be possible to temporarily or permanently eliminate the menses by therapeutic irradiation of the ovaries, a therapeutic action has been done. The writer would give small doses, say about 30 to 50 "R" units, absorbed by the ovary, and repeat this weekly or at longer intervals until the ovary has absorbed about 280 to 350 "R" units, keeping track of the loss of radiation in the tissues by means of Pfahler's saturation charts. To be sure, here also a favorable direct action of the radiation on the infected tissues enters in. Those who are in favor of such treatment are increasing, and Seitz makes the statement that "in these cases radiation therapy will frequently relieve us of the sad necessity of surgical extirpation of the entire genitalia in youthful individuals."<sup>3, 18, 19</sup>

*Contraindications* are acute infections and, of course, association with malignant neoplastic disease as set forth under previous headings. The general contraindications to radiation therapy apply here too, modified in some instances.

5. *Diseases Outside the Genital Tract.*—Lastly I wish to discuss a few pathological conditions remote from the sexual tract which may be benefited by therapeutic irradiation of the ovaries. Carcinoma of the breast in young women is unquestionably stimulated by the ovarian hormones. It is not an infrequent observation to see the breasts of normal women swollen and engorged and painful just prior to the menses. Accordingly it is reasonable in cases of carcinoma of the breasts, when such newgrowths occur in young women, to eliminate the ovarian function by means of radiation. At the Radiumhemmet at Stockholm this is, according to my information, a routine procedure. I have had occasion to do it in two patients and have been impressed by the decreased malignancy and increased radiosensitivity of the tumors (metastases and recurrences).

An equally close relationship exists between the ovaries and the thyroid gland, and in various types of toxic goiter such relationship is quite evident. In suitable cases it is possible to favorably influence the course of a Graves' disease by elimination of the ovarian function. One such case which combined a rather severe exophthalmic goiter with benign uterine bleeding may be cited here. After treating the thyroid with rather limited success for a period of time by means of x-ray, the ovaries were irradiated and an artificial menopause produced. The metabolic rate dropped sharply to normal and the clinical symptoms of Graves' disease subsided. In advanced cases of tuberculosis of the lungs associated with even slight menorrhagia, the course of the disease may often be turned toward a cure by elimi-

nating this drain on the fighting resources of the body. The author has observed such a patient, now completely cured, for many years.

#### SUMMARY

1. Radiation therapy directed to the ovaries with a view of the temporary or permanent elimination of their function is safe and economical in many gynecological and general diseases.

2. Roentgen or radium radiation is the treatment of choice in benign menorrhagia, painful menstruation and menses associated with severe systemic symptoms. It may be also termed the treatment of choice in simple uncomplicated or intramural fibromyomata of the uterus not exceeding the size of a three months' pregnancy. Larger myomata may be treated with the roentgen ray with excellent hopes of success. It is especially indicated where such tumors are complicated by serious renal, cardiovascular, or pulmonary diseases.

3. Of the two agents used in radiation therapy the roentgen ray is the safest and most economical to the patient. Radium is most valuable when the immediate cessation of a uterine hemorrhage is imperative, or when a diagnostic curettage is to be done.

4. The one general and absolute contraindication to all radiation treatment in benign conditions is pregnancy. There are also special and relative contraindications to radiation treatment, especially in the treatment of fibromyoma uteri which I shall not repeat here.

5. In treating youthful patients the ovarian function need not be permanently abolished, and this end may be accomplished by careful and accurate dosimetry (dosimeter in vagina, preferably).

6. The question of damage to the offspring arising from the fertilization of a radiated ovum has not yet been settled for the human. Personally, I think as a rule women much below forty years should be excluded from radiation therapy whenever possible.

7. Radiation therapy does not exclude subsequent surgery nor render it, as a rule, more difficult.

8. Radium will stop uterine hemorrhage within twenty-four hours even in small doses, the latter by direct action on the endometrium. This is not equivalent to action on the ovary of larger doses.

9. The number of authors is increasing who report favorable results from roentgen irradiation of the ovaries when used in chronic infectious disease of the genital tract.

10. Cessation of the menstrual function through irradiation of the ovaries has a valuable therapeutic effect in carcinoma of the breast in Graves' disease and in tuberculosis of the lungs.

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#### DISCUSSION

WILLIAM H. SARGENT, M. D. (1624 Franklin Street, Oakland).—The effectiveness of irradiation treatment in suitable cases of uterine hemorrhage and fibroids has been proven beyond all doubt. In view of this fact every case in which radical treatment is necessary should be considered from the standpoint of radiation as well as surgery. In so-called idiopathic hemorrhage it is the treatment of choice in a very large percentage of cases.

While Doctor Siefert mentions age, say under forty, as being a contraindication, more or less, my personal experience does not bear this out entirely. In young women in whom all other therapeutic measures have failed and for whom a hysterectomy is necessary for

relief, irradiation certainly should be considered, and radium preferably. Where it is deemed advisable, a single, small, carefully chosen dose of radium may be used with reasonable assurance of restoring normal menstruation in from two to four months without producing an amenorrhea.

In older women, say from ages thirty-five to forty, where a large dose is advisable (from 800 to 1200 milligram hours), a temporary amenorrhea usually results which lasts from a few months to a year or so. (It is rare that a dose within this range will produce a permanent menopause in women under forty, but occasionally it may.) When menstruation returns after this treatment, it will be within a fair degree of normal in many cases.

In any case where the return menstruation is abnormal, the question then arises as to whether to repeat the irradiation or use surgery. In very young patients it seems permissible to repeat the radium treatments once or twice if there are evidences of benefit from the previous treatment. These cases are rare and require the exercise of good judgment.

In the cases where an amenorrhea had been produced, repetition of the irradiation depends upon what the condition of the patient was during the temporary menopause. If the menopausal symptoms did not cause much discomfort and the patient otherwise had been in good health, she usually decides the question for herself by requesting irradiation. Where she has not felt well she usually decides to put up with the more or less abnormal menstruation or resort to surgery. This probably is the wisest course to pursue. Fortunately the great majority are in the former class. When irradiation is repeated, small doses of x-ray are used and not radium.

The very debatable question of abnormal offspring resulting from those previously irradiated cannot be discussed here, but it does seem, considering our present knowledge of the matter, that this is not a logical argument against irradiation when radical measures are necessary.

It must be again emphasized that the above applies to young women only who have failed to respond to all other treatment and have finally come to the necessity of radical measures. This, and this only, justified irradiation in these cases.

Much of the above applies also to uterine fibroids, bearing in mind the contraindications mentioned by Doctor Siefert. Larger doses are necessary, hence it is not likely that ovarian function can be conserved. It has been my experience that permanent reduction of the fibroids or control of the associated hemorrhage cannot be accomplished without the prohibiting of ovarian function. I have had no experience in the irradiation of the tumors at the exclusion of the ovaries.

It should be remembered that irradiation is not advisable in young patients if a fibroidectomy can be done.

In regard to the irradiation treatment of fibroids that persist or enlarge after the menopause, it has been my impression that this is not generally advisable. Fibroids usually undergo spontaneous decrease in size after the menopause. Those that do not should be looked upon with suspicion and considered a surgical problem. It is always advisable, if x-ray is considered, to make an x-ray examination of the pelvis previously, to determine if there are degenerative changes present, as evidenced by calcification.

As to the relative merits of radium and x-ray, both are equally efficacious, but under certain conditions one or the other may be more advantageously used. To mention but one example, in cases of hemorrhage over forty, or perhaps even less, a curettage in most instances seems advisable for purposes of diagnosis, regardless of statements to the contrary. I have had two cases of uterine bleeding in which there were not the slightest evidences of carcinoma, and yet a curet-



tage revealed a small adenocarcinoma. If then a curettage is advisable, radium should be used at the same time, and treatment not delayed for subsequent x-ray.

There are other points I would like to discuss if time permitted; suffice it to say that radiation is a most reliable therapeutic measure for uterine hemorrhage with or without fibroids. It produces results with the least possible danger to the patient, and in justice to those who require it, it is to be hoped that it will always be given most careful consideration.

✽

EDWARD N. EWER, M. D. (251 Moss Avenue, Oakland).—From the technical standpoint of the subject of radiology Doctor Siefert's opinions as expressed in this paper are entitled to great consideration. I believe, however, that most gynecologists will differ with him on several points in x-ray and radium therapy as applied to conditions met with and properly belonging within the sphere of their specialty. For instance, the essayist states that benign uterine hemorrhage in the preclimacteric age is usually without pathology in the uterine mucosa, and hence complete elimination of the ovarian function by roentgen radiation may be done without hesitation. This is settling the question of endometrial pathology by guesswork.

In every large gynecologic clinic where the importance of early cancer detection is stressed and where, if anywhere, "competent gynecologic examination" can be made, cases of beginning adenocarcinoma of the body of the uterus are not infrequently discovered by curettage, which the author condemns. At Highland Hospital three such unsuspected cases have been found upon microscopic examination of uterine scrapings during the past year. It is generally agreed that with our present knowledge of cancer, treatment to become more efficient must depend upon early diagnosis. And with the patients in question early diagnosis will depend upon more and more diagnostic curettage. This can be done and radium inserted in one seance.

We may agree with the essayist that painful menstruation after the age of forty, which does not depend upon pelvic pathology which in itself needs correction, may be relieved by radiation elimination of the ovarian function. But dysmenorrhea at that age is not frequent if we except the cases which are secondary to some adnexal trouble such as an inflammatory lesion, where the pain is really in the lesion and is brought on or made more severe by the local periodic congestion. Most gynecologists object to the radiation of such pelvic inflammatory lesions whether they are acute or chronic.

I recently opened, per vaginam, an infected adnexal cyst which flared up two weeks after an x-ray treatment for what had been diagnosed as uterine fibroma.

Perhaps the most pronounced controversial point in this paper is the statement that "radiation is the treatment of choice in simple uncomplicated interstitial and intramural fibromyomata of the uterus of all sizes."

My experience indicates that such a fibroid is not common and that some of the numerous complications are often impossible of diagnosis. A few days ago I saw one the size of a grapefruit along with an unsuspected ovarian cyst of equal size. Two other recent cases were accompanied by subacute salpingitis. Experience with a few cases of complicating malignancy makes me chary of the adoption of radiation as the treatment of choice. Rather I would use it as a treatment of necessity in those cases of small or large fibroids which have bled so much that the patient is not fit for surgery. Small fibroids which are not growing and are not producing symptoms should be left alone but kept under observation. Large ones should be treated surgically, for if not

producing pressure symptoms, they are likely to in the future and as they progress most of them undergo some one of the degenerative changes or cause myocardial trouble which reduces the success of any treatment.

To quote from W. J. Mayo: "The most common conditions indicating operation are those which result from: 1. Hemorrhage. 2. Degeneration (22 per cent). 3. Malignant disease, usually carcinoma of the body of the uterus (4 per cent); 10 per cent of women more than fifty years of age who come to operation for uterine myoma have complicating malignancy. 4. Tumors causing pressure. The great majority of patients who have tumors extending above the pubes belong to this group. It has been shown that in 30 per cent of patients with myomata of the uterus which cause symptoms the ovaries and tubes are seriously diseased and often require operation independent of the myomata."

It seems to me that the facts noted call for surgery more often than not as an agent of conservatism and precision and sufficiently refute the suggestion that American gynecologists are unduly under the "spell of surgery."

I have owned and used radium in gynecology for over ten years, and find its indications quite definite but within limits considerably more circumscribed than those proposed by Doctor Siefert.

The author states—and I think correctly—that all cases of carcinoma of the cervix should be treated with radium, and the dosage must be adequate. All cases of preclimacteric hemorrhage in which biopsy proves the absence of carcinoma are particularly amenable to the action of radium, and because of the necessity of biopsy it should be chosen in preference to x-rays.

Young women should be radiated only under the most exceptional circumstances, for even the lighter doses may prevent pregnancy and, if not, miscarriage is likely to occur. Doctor Siefert's advice on that point is eminently sound.

✽

DOCTOR SIEFERT (Closing).—Doctor Sargent's views are essentially in accord with my own.

Doctor Ewer, in his discussion, accuses me of condemning diagnostic curettage, and says that I advocate "settling the question of endometrial pathology by guesswork." If Doctor Ewer will again read my paper and consider it in its entirety, he will see that I advocate not exactly that. I do, however, propose to leave the question of endometrial pathology open in a certain number of cases when the diagnosis of a benign condition can with reasonable certainty be made without resorting to diagnostic curettage. For such cases I advocate treatment with the roentgen ray. Doctor Ewer, in his discussion, does not keep sufficiently in mind the fact that my paper deals with the use of two types of radiation, i. e., roentgen ray and radium, and that the technique of application is, as generally used, fundamentally different with the two agents. Doctor Ewer will notice that wherever radium is to be used in the uterine cavity I advocate doing diagnostic curettage as a matter of course.

Concerning, however, the dangers accompanying diagnostic curettage and the use of radium, let me refer to Ewing, whom I think Doctor Ewer will accept as a competent and unbiased witness. Doctor Ewing says in *Radium Report of the Memorial Hospital*, page 281, 1923, under the heading of "Myoma Uteri": "Yet some observers believe that it is unnecessary to submit all these patients to an elaborate gynecological technique, when they can be cured by external treatment with radium and x-ray." By external treatment with radium Ewing has in mind radium radiation with large quantities of radium of deeply situated organs, percutaneously, entirely analogous to the administration of roentgen radiation. He continues, "All the bad results that I have seen with radiation treatment of myomas have occurred in cases in which the



uterus was dilated, the mucosa curetted off, and radium inserted into the cavity. This familiar process is not without hazards, as it prolongs convalescence and converts the treatment into a substantial gynecological operation which may not always be necessary. Before the days of radium I performed autopsies on the bodies of women who died from latent infection stirred up by simple exploration of the uterus and curettage."

Diagnostic curettage, then, in my opinion, should be a matter of careful consideration and judgment in the individual case and not a routine to be adhered to at all costs. It is for this reason, too, as Doctor Ewer has apparently not noted that I circumscribe the indication of the use of radium in benign conditions rather sharply, in fact, would use it only when immediate cessation of uterine hemorrhage is imperative and in those few cases where only temporary menostasis is desired and there only for the reason that in America direct roentgen dosimetry has not yet been generally adopted (with notable exceptions, of course).

As for carcinoma of the body of the uterus which might be overlooked by omitting a diagnostic curettage, let me say that of all gynecological carcinomata, cancer of the uterine body is only five per cent according to statistics compiled by the large clinics at home and abroad. If such statistics be made to include, in addition to the gynecological carcinomata, also those benign conditions with which my paper deals, the incidence of cancer of the uterine body will sink to about one per cent. If one subtracts from this those cases which may be diagnosed or at least suspected without curettage, it will be seen that the chances of unwittingly radiating a corpus carcinoma under the guise of a benign condition are less than one per cent. Moreover such a mistake in diagnosis may be corrected in reasonable time by watching the patient carefully after radiation, as my paper suggests, and the proper measures then instituted. Adenocarcinoma of the body of the uterus infiltrates late, hence remains operable for a comparatively long time. May I just mention here that the mortality for subtotal hysterectomy is at best one and one-half per cent, a jeopardy into which the patient is asked to place herself when submitting to surgery for a benign condition. A patient dead of embolism following hysterectomy cannot be resurrected, but a patient radiated on a mistaken diagnosis may still be cured of a corpus carcinoma.

As to the frequency of painful menstruation in women at the preclimacteric I will say that is not the question, but rather whether they are suitable for radiation treatment. Those cases, however, in whom menstruation is associated with the unpleasant nervous or other symptoms not referable directly to the genitalia are not very uncommon, I think, Doctor Ewer will concede.

Doctor Ewer makes much of the uncertainties of gynecological diagnosis and utilizes this as an argument for surgery. According to my observation the situation is not so serious and that the percentage of cases which cannot be diagnosed with reasonable accuracy before operation is comparatively small, especially if the proper diligence is used to make a preoperative diagnosis, instead of relying, as is often done, upon the operation to reveal all pathology. I am, moreover, ready and willing to concede to Doctor Ewer that all doubtful cases should be excluded from radiation, and think I have brought out this view sufficiently in my paper.

Concerning the question of lighting up latent infection by radiation, the danger is great only with the intra-uterine use of radium and there, as my reference from Ewing shows, an elaborate gynecological technique without the use of radium may have the same dire results. Still I think the fact is that infection may be diagnosed in the great majority of cases or at least suspected. Acute and subacute cases are excluded from radiation treatment without dispute. Chronic and "burnt out" cases may be treated

according to good authority, with small repeated doses of roentgen ray. I am, however, content to leave the question of radiation treatment of these cases in controversy for the present.

As for the statement made in the summary of my paper, item two, which Doctor Ewer states to be "the most controversial of all," I am prepared to concede a point to him. Speaking of roentgen or radium radiation, I state that "It may also be termed the treatment of choice in simple uncomplicated interstitial and intramural fibromyomata of the uterus of all sizes." This statement seemed to me at first sufficiently conservative, after having reviewed in detail the contraindications of radiation therapy. I shall, however, rephrase it to read: "It may be also termed the treatment of choice in simple uncomplicated or intramural fibromyomata of the uterus not exceeding the size of a three months' pregnancy. Larger myomata may be treated with the roentgen ray with excellent hopes of success."

In connection with the uncertainty of diagnosis, of complications and the liability of a shrinking myoma to cause pressure symptoms and to degenerate, I wish to call attention to the statistics gathered by Gauss and his associates of 18,015 cases of hemorrhagic metropathies and fibromyomas, which cover a period of thirteen years—1914-1927. They report a clinical cure in 95 per cent of these cases. Certainly, these German gynecologists must be up against the same difficulties which Doctor Ewer emphasizes so strongly.

My suggestion that American gynecologists are unduly under the spell of surgery, as regards to the treatment of the conditions with which my paper deals, must appeal as correct to anyone who compares the European literature, especially the German, French, and Scandinavian, with the American on the subject.

Now, I think, I have replied to all of Doctor Ewer's major criticisms, and thank him for having forced me to examine carefully the soundness of the points of view presented in my paper. Perhaps with further experience modification will be necessary and my mind shall be open.

## PRESENT DURATION OF BREAST FEEDING\*

REPORT OF ONE THOUSAND AMERICAN WELL BABIES

By EDWARD J. LAMB, M. D.  
*Santa Barbara*

DISCUSSION by John Brown Manning, M. D., *Santa Barbara*; Robert E. Ramsay, M. D., *Pasadena*; Clifford Sweet, M. D., *Oakland*.

FOR many years there has been an interest on the part of pediatricians in the length of time modern mothers nurse their babies. During the past two decades there has been a somewhat general feeling among physicians that mothers were not nursing their babies as long as they could. Ten and twenty years ago papers were published to bring out this point and emphasize the importance of breast feeding. During the last decade extremely few similar papers have been published. Preventive medicine as it relates to infants during this last decade has received much propaganda through the dissemination of literature from such authoritative sources as national, state, county and city health agencies. To the same ex-

\* Read before the Pediatrics Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

TABLE 1.—*Parturient Statistics*

|                        |              |       |
|------------------------|--------------|-------|
| Age of mother:         | 18-20        | 8.3%  |
|                        | 20-30        | 67.3% |
|                        | 30-42        | 24.4% |
| Number of pregnancies: | Primipara    | 63.8% |
|                        | Multipara    | 36.2% |
| Type of Delivery:      | Normal       | 87.0% |
|                        | Instrumental | 11.1% |
|                        | Breech       | .5%   |
|                        | Caesarian    | 1.4%  |
| Birthweight:           | 7- pounds    | 19.7% |
|                        | 7-8 pounds   | 49.8% |
|                        | 8+ pounds    | 27.1% |
| Special:               | Premature    | 3.4%  |
|                        | Twins        | 2. %  |

tent commercial enterprises and other organizations have disseminated information regarding the quality of milk now being marketed with the result that the modern mother has become milk-minded. It is surprising, even today, to note to what extent physicians are of the opinion that the baby is not kept long enough on the breast.

This paper is written to compare the duration of breast feeding at the present time with that during the last two decades, and to compare other related conditions.

The series of cases cited is taken from one thousand well babies under my care during the last two years. The group represents normal well babies of intelligent American parents.

LITERATURE

Manning<sup>1</sup> wrote a similar paper in 1920. Since then there has been an occasional paper written on breast feeding and its relation to infant mortality. In 1912 and 1916 Griffith<sup>2</sup> and Mitchell<sup>3</sup> each published papers on this same subject. In 1921 the late Doctors Sedgwick and Fleischner<sup>4</sup> presented an article on breast feeding in reducing infant mortality. In 1922 Dietrich<sup>5</sup> published an analysis of one thousand breast-fed babies.

All of the above publications referred to babies in large cities. This paper deals with babies of a semirural community, a city of wide geographical limits with a population of thirty-five thousand inhabitants, a community where the housing is most favorable for the care of infants, and the weather conditions equable.

Features which have been elicited from these

TABLE 3.—*Analysis of Similar Series*

|                      | Manning's Series | Dietrich's* Series | Lamb's Series |
|----------------------|------------------|--------------------|---------------|
| Less than one week   | 8.1%             | 4.8%               | 6.54%         |
| One week             | 1.8%             | 4.1%               | 2.43%         |
| Two weeks            | 4.0%             | 2.4%               | 2.62%         |
| Three weeks          | 4.9%             | 2.6%               | 1.49%         |
| One month            | 7.9%             | 6.7%               | 9.34%         |
| Two months           | 9.2%             | 7.4%               | 7.10%         |
| Three months         | 9.8%             | 9.0%               | 7.29%         |
| Four months          | 6.3%             | 6.2%               | 5.05%         |
| Five months          | 6.8%             | 4.1%               | 3.36%         |
| Six months           | 5.5%             | 7.1%               | 7.66%         |
| Seven months         | 4.7%             | 5.2%               | 4.49%         |
| Eight months         | 4.2%             | 10.3%              | 13.27%        |
| Nine months or above | 26.8%            | 29.9%              | 29.34%        |

\* Total numbers converted into percentages.

case records other than the duration of breast feeding are: statistics on the age of the mother, number of pregnancies, character of labor, and weight of infant at birth.

THE DURATION OF BREAST FEEDING

These statistics are not from the poorer class of women, but from intelligent American mothers of, at least, moderate financial status, who have become milk-minded through reading literature published in the current magazines of the value of good milk, the grades of milk, and other factors. These mothers are cognizant of the low mortality rate in breast-fed infants.

For purposes of comparison the following tables illustrate the similarity of breast feeding over a period of three decades:

TABLE 4.—*Length of Time Complementary Food Was Given Before Weaning*

|             | Less 1 week | One week   | Two weeks    | Three weeks  |             |
|-------------|-------------|------------|--------------|--------------|-------------|
| Dietrich .  |             |            | 1.19         |              |             |
| Lamb.....   | 1.29        | 4.30       | 4.73         | 1.72         |             |
|             | One month   | Two months | Three months | Four months  |             |
| Dietrich .. | 4.76        | 15.47      | 26.19        | 16.66        |             |
| Lamb.....   | 30.32       | 18.94      | 15.4         | 6.66         |             |
|             | Five months | Six months | Seven months | Eight months | Nine months |
| Dietrich .  | 26.19       | 4.76       | 3.57         | 1.19         |             |
| Lamb.....   | 18.94       | 4.51       | 1.93         | 3.87         | 2.36        |

TABLE 2.—*Duration of Nursing Months*

| Cases Reported                    | Not Nursed | 1 week or over | 3 mos. or over | 6 mos. or over | 9 mos. or over | 1 year or over | 18 mos. or over | 2 yrs. or over |
|-----------------------------------|------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|
| Koplik 6<br>1007 cases            | .....      | .....          | 40%            | .....          | .....          | .....          | .....           | .....          |
| Sedgwick 7<br>Wives of physicians | .....      | .....          | 80%            | .....          | .....          | .....          | .....           | .....          |
| Mitchell 3<br>2819 cases          | 20%        | 80%            | 55%            | 42%            | 34%            | 27%            | 9%              | 2%             |
| Brown 8<br>633 cases              | .....      | .....          | 76%            | 46.7%          | 30.4%          | .....          | .....           | .....          |
| Manning 1<br>1000 cases           | 8.1%       | 91.9%          | 64%            | 41%            | 26.8%          | 11.8%          | 1.6%            | .3%            |
| Lamb<br>1000 cases                | 6.54%      | 93.44%         | 70.46%         | 56.76%         | 29.34%         | 7.66%          | .....           | .....          |



It is encouraging to note that this series compares favorably with similar social groups\* published eight and ten years ago.

TABLE 5.—Reasons for Weaning, Summarized

|                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|
| A. Inability on the part of the infant:                                                                                                       |
| 1. Prematurity or immaturity or some cerebral injury at birth.                                                                                |
| 2. Various infective disorders such as sepsis neonatorum, icterus and hemorrhagic disease which cause loss of appetite and refusal to suck.   |
| 3. Anatomical defects such as pyloric stenosis.                                                                                               |
| 4. Morbid conditions of the baby's nose, mouth and upper air passages such as adenoids, hare lip, cleft palate, etc.                          |
| 5. Allergic disorder, as eczema.                                                                                                              |
| B. Inability on the part of the mother:                                                                                                       |
| 1. Death of mother at childbirth.                                                                                                             |
| 2. Local conditions, such as depression, excoriation of crackling of the nipples and abscess of the breast.                                   |
| 3. General conditions such as malnutrition from deficient nourishment and constitutional diseases such as influenza, anemia and tuberculosis. |
| 4. Psychological causes as anxiety, excitement, psychopathic, etc.                                                                            |
| 5. Pregnancy.                                                                                                                                 |
| C. Interference with breast feeding due to economical or social conditions:                                                                   |
| 1. A few mothers are obliged to return to either full time or part time work which separates them from their babies.                          |
| 2. Occasionally a mother is obliged or desires to travel to places where it would not be feasible for her baby to accompany her.              |

It is quite proper to encourage breast feeding, but we should not make the mistake of disparaging substitute feedings, for in this series we cannot but note that the babies fed on artificial milk formula have shown no serious deviations from that normal development that regularly follows adequate breast feedings.

I attribute the success not so much to any one particular formula as to the character of the milk, and the intelligent coöperation of the mothers.

TABLE 6.—Summary of Substitutes Used for Breast Feeding

|                                               | No. of Cases | Percentage |
|-----------------------------------------------|--------------|------------|
| Dextri maltose with whole milk dilution ..... | 382          | 50.06%     |
| Karo with whole milk dilution.....            | 177          | 23.20%     |
| Cane sugar with whole milk dilution ....      | 44           | 5.76%      |
| Dryco .....                                   | 41           | 5.37%      |
| Milk and water .....                          | 34           | 4.45%      |
| Lactic acid with whole milk dilution .....    | 29           | 3.80%      |
| Lactose with whole milk dilution .....        | 20           | 2.62%      |
| Thick gruel .....                             | 9            | 1.18%      |
| Goat's milk .....                             | 8            | 1.04%      |
| S. M. A. ....                                 | 6            | .79%       |
| Eagle Brand .....                             | 4            | .52%       |
| Malted Milk .....                             | 3            | .39%       |
| Barley water with whole milk dilution....     | 3            | .39%       |
| Casec with whole milk dilution .....          | 2            | .26%       |
| Skimmed milk .....                            | 1            | .13%       |

CONCLUSIONS

From this comparative study with series made in previous years, one can safely conclude that the duration of breast feeding has not decreased during the last two decades.

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DISCUSSION

JOHN BROWN MANNING, M. D. (1515 State Street, Santa Barbara).—A comparison with the duration of nursing months as indicated in the table presented by Doctor Lamb compares very closely with that of nine of a decade ago. However, the general appearance of all bottle-fed babies now as compared with ten years ago has, in my experience, greatly improved.

The chief factors contributory to better results as indicated by the nutrition in bottle-fed babies might be briefly summarized as follows:

1. The simplified infant feeding of today. The further we get away from the complicated percentage method of the last two decades the better are our results. Surprising as it may appear, knowing the milk supply of the community, I find myself not only disregarding exact percentages, but often paying little or no attention to the caloric value, with far better results than ten years ago.
2. The numerous well baby clinics and other agencies distributing information on the care and handling of babies.
3. The general improvement in the production and handling of milk.

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ROBERT E. RAMSAY, M. D. (65 N. Madison Avenue, Pasadena).—It is generally agreed that there are few mothers who do not want to nurse their babies. It is also generally agreed that there is great diversity among mothers that have been studied as to the quantity and composition of the milk, and the duration of the ability to nurse. The fairly uniform findings of many observers warn us not to expect so long a nursing period as the idealism of many former teachers have led us to expect. It is a fact that the desire to nurse the infant in spite of difficulties has in many cases led to disastrous results.

Care during parturition and the lying-in period is of great importance. A prolonged exhausting delivery will retard the secretion of breast milk. So, also, poor convalescence will interfere with the establishment of a sufficient supply and lead to early use of complementary feeding. The total result will be early weaning.

The emphasis laid on good obstetrical care may well be extended to the prenatal period. The care of depressed nipples should begin before childbirth. Instruction with regard to the desirability and the advantages, as well as the method of breast feeding, should be given during this period. Many expectant mothers continue their social activities to a degree injurious to the offspring. The same mothers wish to resume their accustomed round long before they have regained their full strength and the ability to nurse their child at the same time. Lessened strain and excitement during the lactating period will help in the production of sufficient milk of good quality. In the prenatal period the same procedure will favor the production of a healthy child who can handle its food well.

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CLIFFORD SWEET, M. D. (242 Moss Avenue, Oakland). Doctor Lamb's study of a large number of the records of patients in private practice is valuable. More of this kind of research will yield an increasing amount of practical knowledge which will be of value to all of us who are studying the health problems of our patients as they are presented in daily practice. This knowledge will advance the art of practicing medicine and thereby make us more able to meet the needs of our patients.

Not every mother has a sufficient supply of breast milk to nurse her baby successfully. The mother who

has not the hereditary functional ability to meet at least a considerable part of her infant's growth and development needs should not have her life made miserable in an attempt to accomplish the impossible. On the other hand, breast feeding should not be discarded too lightly without a fair attempt to bring the breasts up to their functional capacity. Virgin breasts must be stimulated sufficiently often by thorough emptying to establish full function. Double breast feeding (the value of which was understood and made use of by our grandmothers) is a very valuable means to this end. The trial period must be extended over a sufficient time to prove the absence of the ability to carry on nursing satisfactorily. Six weeks postpartum is the shortest period which can be accepted as sufficient for demonstrating the lack of an amount of breast milk that is valuable as entire or partial nourishment for the infant. Many mothers can discard supplemental feedings at the end of this time and continue over a long period of very satisfactory milk production.

The intangible values of breast feeding over artificial feedings in the after-life of the infant are not easily made apparent and may not be important. Man's life is long and is influenced by many factors and conditions. Nevertheless, they may well be considerable. The psychic satisfaction that comes to the mother who nurses her infant is real and apparent and no doubt serves to increase and enrich her attachment to her child.

The desire to nurse her infant is well worth all the encouragement and painstaking help which her physician can give to the mother.

## RECURRENT RETINAL HEMORRHAGES\*

### REPORT OF CASES

By THEODORE C. LYSTER, M. D.

Los Angeles

DISCUSSION by M. F. Weymann, M. D., Los Angeles; Joseph L. McCool, M. D., San Francisco; Hans Barkan, M. D., San Francisco.

RECURRENT retinal hemorrhages, especially those occurring in young adults, although not frequently reported in ophthalmic literature, are believed not so rare in practice. Trauma, lues, or a probable focal cause, other than pulmonary, can reasonably be excluded in a great many cases, leaving a relatively large group with undetermined etiology.

### TUBERCULOSIS AS A CAUSATIVE FACTOR

Many of these may be due to a chronic tuberculous retinitis. These are the tragic cases for the oculist. One eye is usually lost, or permanently damaged, and the second eye on its way to becoming blind before the low-grade changes, either in the tracheobronchial glands, or other pulmonary structures, generally at the hilus, are considered as possibly responsible for the eye condition. Because the physical signs in the chest are usually not marked, these patients are rarely seen in sanatoria for the tuberculous. The internists in general, and especially those interested in tuberculosis, are exceedingly skeptical about the pulmonary changes having any direct association with the ocular disturbance. Our attention has been repeatedly called to this disassociation, espe-

cially by Jackson<sup>1</sup> and Finnoff.<sup>2</sup> That this is so hardly seems reasonable in view of our present knowledge of tuberculous conditions. It would hardly appear necessary to anyone following the trend of thought, as seen in the mass of literature on tuberculosis, to doubt that a latent pulmonary infection, such as is frequently seen in a peribronchial lymph node, may be the cause of the presence of a lesion in a far-distant organ of the body. The papers of Ophüls<sup>3</sup> and Krause<sup>4</sup> might here be mentioned simply to support this statement. Opie<sup>5</sup> has well stated: "Anatomic evidence furnishes abundant proof that the tuberculosis of the healthy should not be regarded as a trivial infection, of interest only to the pathologist."

Nearly every tissue of the body would appear susceptible to a secondary tuberculous manifestation, even when the primary lesion is almost negligible. Every structure in the eye—even the lens—has been found tuberculous at times. As for retinal tuberculosis, it has been medically accepted for many years and recognized as a vascular lesion, generally associated with superficial or deep retinal hemorrhages. Except when secondary to an extension from a neighboring structure, usually the choroid, the primary focus has frequently been suspected rather than determined. Friedenwald,<sup>6</sup> in discussing recurrent retinal hemorrhages, concluded that "none of these lesions are specifically tuberculous," which seems to be the generally accepted opinion, from its pathology. However, again quoting: "The pathology of phlyctenular disease shows little that is specific." Both conditions, clinically, are frequently considered tuberculous, but there seems to exist, even among pathologists, a willingness to accept the latter as an allergy but not the former. It would appear from our unsettled knowledge of allergy and immunology that no positive conclusion is warranted at the present time. Because of the comparative rarity where the tubercle bacillus has been found in suspected chronic retinal tuberculosis, much controversy has resulted to explain this rarity. Judging from the work of Otori<sup>7</sup> in 1914, and confirmed by many since (especially Finnoff<sup>2</sup>), it is exceedingly difficult to produce a primary tuberculous retinitis in animals, even by injection of tubercle bacilli into the carotid artery or temporal vein. The influence created by the classic work of Rosanow<sup>8</sup> that an organism such as the *Streptococcus viridens* from an apical abscess must be present in an ocular tissue before a focal reaction for the eye can be produced, still dominates our present general concept of all allergic ocular reactions.

Because of accessibility much animal experimental work has been possible in phlyctenulosis. The absence here of tubercle bacilli in the sclero-corneal tissue would appear confirmed, and this shakes somewhat our assurance that even in tuberculous retinitis, where the organism is so rarely found, that the living organism is a necessity. While much of what has been stated might appear simply controversial, the underlying thought is that proven pathology and clinical experience seem to differ at the expense of the

\* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



patient. This is especially so if the lesion is truly one of tuberculous origin, for irreparable damage closely follows the appearance of these ocular disturbances. Whatever may be the verified results as to the mode of production of chronic tuberculous retinitis—whether an allergic reaction with or without the actual presence of the tubercle bacilli in the retinal tissues—the pathologic changes are quite definite. Finnoff<sup>2</sup> states as follows in describing retinal tuberculosis:

"The condition occurs as a vasculitis or a perivasculitis of the retinal vessels, or as small white areas in the retina which resemble the exudates found in albuminuric retinitis. The vessels, when involved, frequently rupture, and hemorrhages into the retina and vitreous occur. Hemorrhages absorb slowly and are frequently replaced by fine strands of scar tissue (retinitis proliferans). The hemorrhages are usually recurrent. Following hemorrhages the vision is markedly impaired. The amount of impairment depends upon the extent and location of the bleeding. Both eyes are usually involved in this process, and the prognosis regarding vision is poor. This type of tuberculosis as a rule is of the chronic variety, and it is frequently seen in persons with latent tuberculosis. It is often impossible to find the primary seat of the disease, as these patients appear to be perfectly healthy.

"The picture is essentially one of vascular pathology and differs both in character and development from that seen in the acute forms of intra-ocular tuberculosis.

"In the acute type of intra-ocular tuberculosis, active tuberculosis is usually found elsewhere in the body and the ocular condition is due to the presence of living tubercle bacilli. If the patient lives for a long enough period after the eye condition develops, a destructive ocular process will be observed. When the lesions are inside the eye, the involvement rapidly progresses until the eyeball is entirely destroyed, or until it ruptures and its contents are expelled. While no difficulty is encountered in locating tubercle bacilli in the acute cases, only with the greatest rarity have the actual tubercle bacilli been found in the chronic types."

Otori<sup>7</sup> reported two cases where sections were made, showing stained tubercle bacilli in the sheaths of retinal veins. Fuchs<sup>9</sup> reports one case of tuberculous disease of the sheaths of the retinal vessels found at autopsy; the bacillus evidently was not found as it was not mentioned. Holloway<sup>10</sup> describes in detail the course of two cases of definite tuberculous retinal phlebitis associated with recurrent ocular hemorrhages. No mention, however, was made of his finding the actual organism present in the lesions. As a result of experimental work done in 1914 by Otori<sup>7</sup> his conclusions were:

"The rarity of primary retinal tuberculosis depends not only on the small blood volume or the greater velocity of the blood stream, but rather is to be ascribed to a certain indispositional attitude of the retina toward a tuberculous primary affection.

"The experiments show further perivascular findings, not only in the choroid but also in the other organs of the body, especially the lungs.

"The primary process in the cases before us began as a perivasculitis of the retinal veins, and this perivasculitis is not a symptom of reaction against the toxic irritation, but is caused directly by the tubercle bacilli which reached the retina by way of the lymph.

"In my judgment, the investigations as to the existence of tubercle bacilli in the retina offer no such great difficulty as other authors assume."

The intervening fifteen years in ophthalmic literature would not appear to confirm such ease in finding this organism, as he seems to be the only one so fortunate.

Verhoeff<sup>11</sup> in reporting his histologic findings in a case of localized tuberculous chorioretinitis, while failing to find tubercle bacilli in stained sections, based his diagnosis of tuberculous chorioretinitis on the nodular arrangement of epithelioid and giant cells opposite practically every retinal vein, but nodules also occurred without apparent relation to the veins.

Such evidence, however limited, is conclusive as to the fact that tubercle bacilli at times do lodge near retinal veins and are associated in such cases with recurrent retinal hemorrhages. Whether the not infrequent cases of recurrent hemorrhages in youth are always due to the actual presence of the organism cannot be accepted without more confirmatory data than now seems available.

Weekers,<sup>12</sup> in a recent experimental treatise on phlyctenulosis of the eye and tuberculosis, came definitely to the conclusion that these conditions are usually tuberculous in origin and focal in character; are allergic manifestations, the result of a latent pulmonary tuberculosis. If this is true it would appear reasonable that the general allergic principles may be the same for a retinal focal reaction, as for a corneal one.

Because the eye of man in an early active stage of recurrent retinal hemorrhage of probable tuberculous origin so rarely is enucleated and studied in serial section, the proof of its tuberculous nature is most difficult to establish. Even when such eyes are obtained, and when sectioned, and no giant cells, caseation or tubercle bacilli are found, there still remains a possibility that the cause may still be a tuberculous focal reaction. That focal reactions may occur in an apparently normal eye in a patient with pulmonary tuberculosis has been well recognized for many years. Calmette's conjunctival reaction following topical application of tuberculin was formerly quite generally used and then condemned, not because of not giving information, although probably of little diagnostic value, but because it resulted at times in the unnecessary loss of an eye. With the wide use of tuberculin there is now recognized a constitutional, a local, and a focal reaction (hemorrhage and exudate), whether the location be the eye or any other part of the body.

Krause<sup>5</sup> states: "All tissues of a tuberculous animal are allergic (Nichols on the lung, Kimberg on the kidney, Peterson on the pleura, Soper on the liver, etc.)." Again: "While the comparative allergic capacity of uninvolved tissue is a problem awaiting solution, there is no question of the much greater reacting quality of tuberculous foci as compared with nontuberculous tissue of the same animal."

#### ACTION OF TUBERCULIN

Everyone who has used tuberculin in these retinal conditions will admit that the ever-present danger from too large doses is a focal reaction.

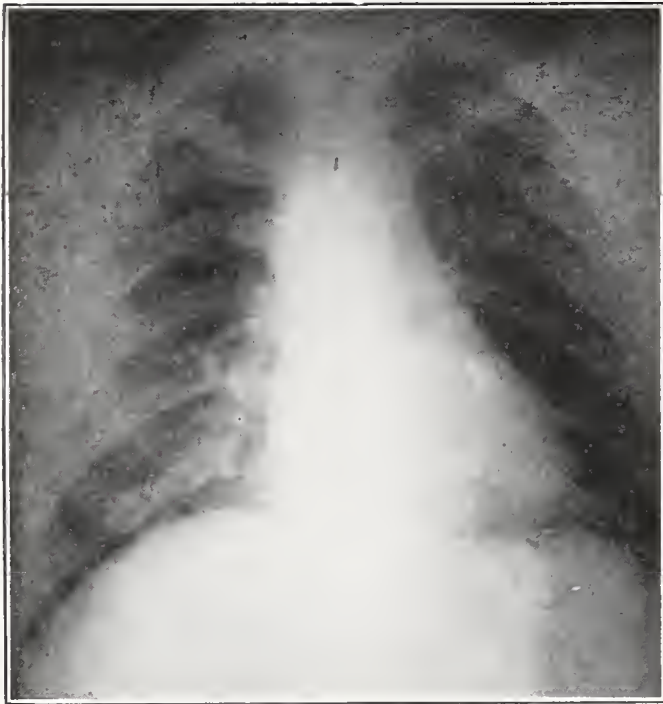


Fig. 1 (Case 1).—Radiograph of the chest shows normal adult lung fields with moderate increase in the thickness and density of the hila and peribronchial shadows, especially in the right lower lobe.

While it must be admitted that a metastatic tubercle of the retina would probably be activated by an overdose of tuberculin, it is also probable that a retinal tubercle thus activated would not, as a general rule, so readily and completely subside, leaving often hardly a trace of its former presence. This is so frequently seen following repeated focal reactions in the retina from tuberculin. Because of the not infrequent serious damage to a susceptible eye, the dose of tuberculin, according to Finnoff,<sup>2</sup> “should be controlled by the focal reaction and not by the local or constitutional reaction—the latter, such as Pirquet,

Moro, and Calmette tests, being valueless as diagnostic tests in eye tuberculosis, showing only that the individual is sensitive to tuberculin or is recovering from an old tuberculous infection.”

Certain pathologic phenomena are common in practically all of these patients with recurrent retinal hemorrhages. There are present low-grade hilar changes, suspicious of tuberculous origin, demonstrated roentgenologically even when not by auscultation or percussion; they are more frequent in the second and third decades of life and, statistically at least, more among men than women. A focal reaction can only too frequently be produced by an overdose of tuberculin, or even by a disturbance such as an acute cold, which acts as a pulmonary excitant. There are frequent exacerbations, usually with some apparent pulmonary disturbance, however slight. Recovery may be practically complete temporarily, or go on to absolute blindness and ocular degenerative changes—rarely, however, with caseation or other evidence of manifest tuberculosis of the eye. The lesions are vascular, affecting the retinal veins and not the retinal arteries.

The retinal lesions, especially in the deeper layers, are usually in both eyes and quite similar as to location and character, although one eye is generally more advanced than the other. This phenomenon, while quite the rule with toxic disturbances, could only occur as a coincidence by metastasis.

#### PATHOLOGIC CHANGES IN THE RETINA

The pathologic process as seen by us ophthalmoscopically, begins with some dilation and thickening of the coats of one or more veins; then an oozing extravasation takes place at one or more points. The bleeding in the retina may be superficial or deep. When superficial, it may

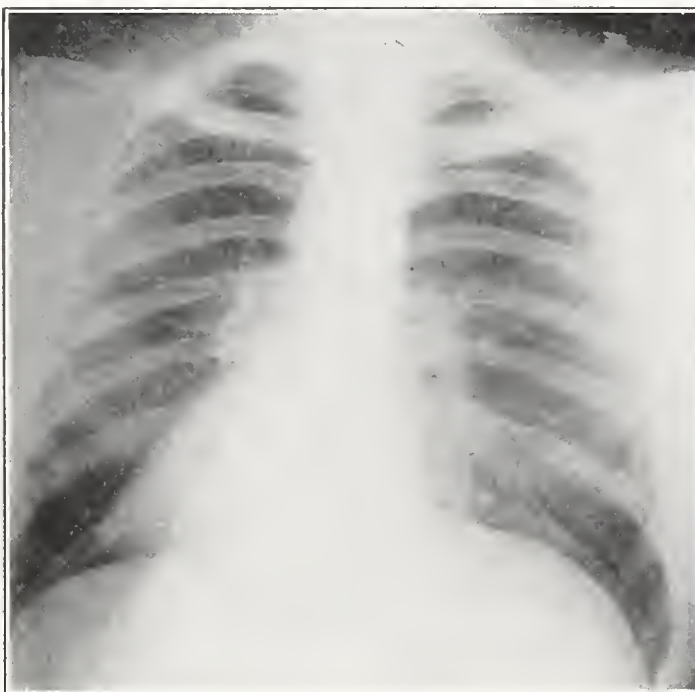


Figure 2a, Case 2.

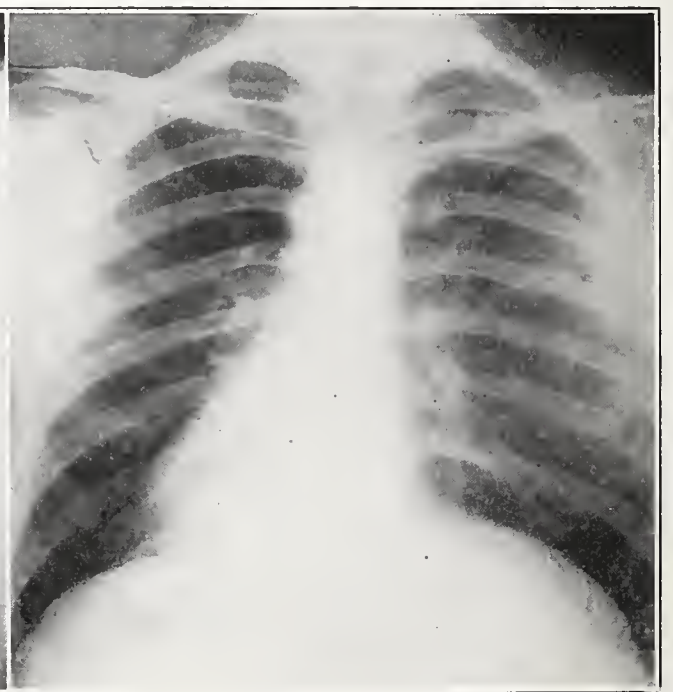


Figure 2b, Case 2.

Fig. 2a (Case 2) and Fig. 2b (Case 2).—(Illustrations here are reversed, showing the heart on the right side. The plates should be turned when the prints are made.) Radiographs of the chest show moderate generalized thickening, with peribronchial and hila shadows on both sides. Aside from this the appearance is that of a normal chest.



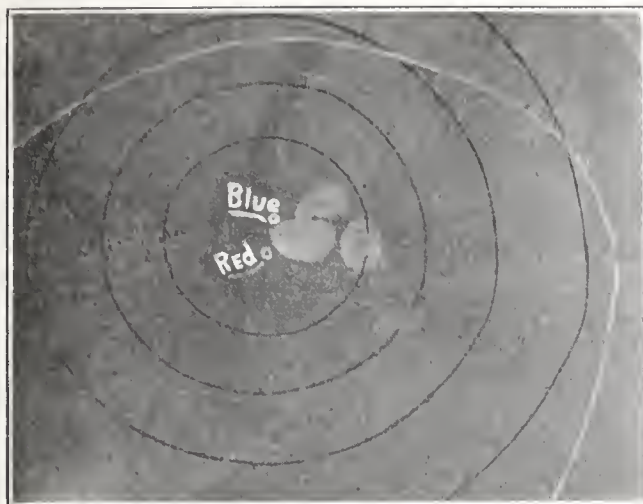


Fig. 3a (Case 3).—Absolute scotoma in the left half of the field of the left eye, which appears as an irregular enlargement of the blind spot. In other respects the field is normal. (Please note that here in the woodcuts 3a should be 3b, and 3b should be 3a—in other words, they have misplaced the visual field photographs.)

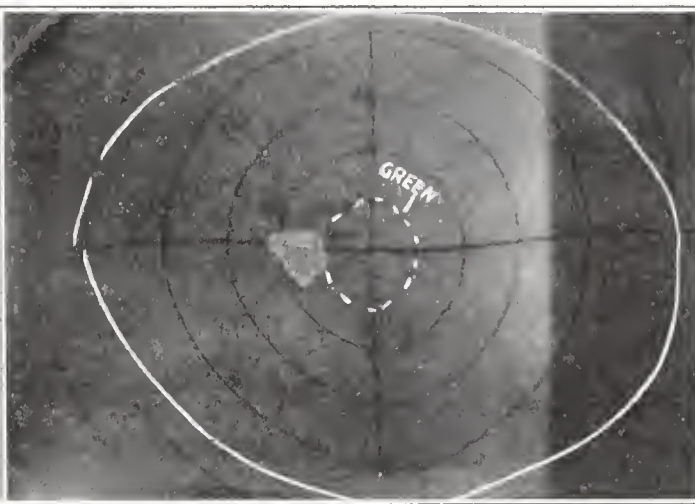


Fig. 3b (Case 3).—Three well-marked absolute scotomata in the right field of the right eye. The larger appears to be an extension enlargement of the blind spot; the other two, one above and one below, are inside the twenty-degree circle. In other respects the fields are normal.

break into the vitreous. Later this exudate may become organized, persisting as floating opacities in the vitreous. They are frequently attached by long fibrous bands to a retinal vein, which latter may be more or less damaged. The vein is usually not obliterated, but its course and caliber much altered. Frequently yellow-white bands extend outward from the disk along the course of the retinal vessels as evidence of retinal folds and fibrous retinal changes (retinitis proliferans). When the hemorrhage and exudate extends toward the choroid the resultant lesion is frequently an atrophy of deep retinal and choroidal structures, leaving only sclera covered by superficial retinal layers. These areas are often surrounded by pigment and not infrequently a retinal vessel is seen to course over the white patch uninterrupted in size or direction. These lesions are often located at corresponding points of each retina. If one is macular, both are; if one adjoins the disk margin, the other does likewise. The end result is one of atrophy following a limited retinochoroiditis, or scar tissue along the course of the affected vessels with the visual damage depending upon the location of the lesion and its extent.

#### RÉSUMÉ

Recurrent retinal hemorrhages in the young adult are sufficiently frequent and tragic to require early diagnosis.

They are generally due to a phlebitis. One eye is frequently lost or severely damaged, and the other eye on its way to permanent injury, or even blindness, before its probable tuberculous nature is actively suspected.

Eyes with these retinal lesions, in early active stages, are rarely enucleated and then studied in serial sections.

While they are at times due to a metastatic ocular infection, wherein tubercle bacilli have been found in stained sections following enucleation, there is much clinical evidence to sup-

port the contention that these lesions may often be a tuberculous allergic manifestation of pulmonary origin. The mode of production, however, is of less importance than its early recognition if useful vision is to be retained.

Regardless of the apparent trivial character of the pulmonary lesions, these patients should receive early and active specific treatment, such as is now common in our modern sanatoria for the tuberculous.

The closest coöperation between the internist and oculist is essential, both for diagnosis and treatment.

Tuberculin is of recognized value, but must be used with great care and a focal reaction avoided because of the danger of serious permanent visual damage.

While admitting the appearance of the pulmonary lesions may show little that is not seen in the average healthy individual, the added presence of recurrent retinal hemorrhages before middle life, when trauma, lues, and focal infections other than pulmonary can be reasonably excluded, a tuberculous origin should be suspected and given the benefit of a doubt by active specific therapy.

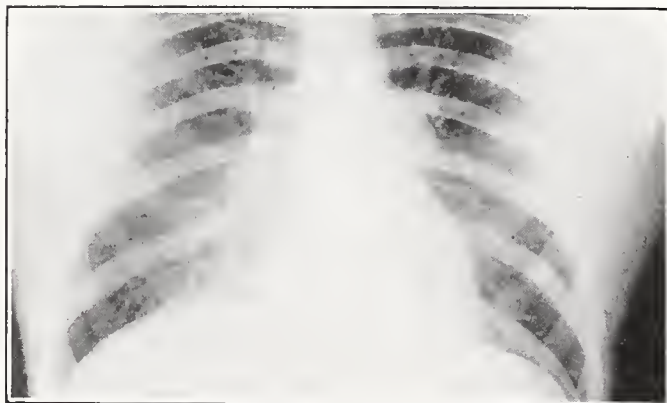


Fig. 3 (Case 3).—Radiograph of the chest shows practically normal lung with moderate increased density of hila and peribronchial glands shadows.

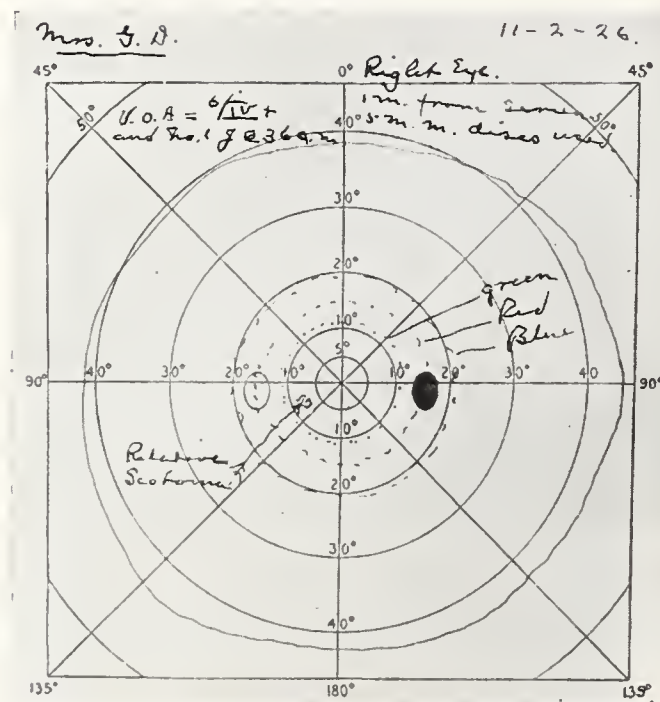


Fig. 4 (Case 4).—Visual field of right eye normal in all respects with the exception of a small relative scotoma in the inferior nasal quadrant at about seven degrees from the point of fixation.

Four case histories are submitted to illustrate the two common forms of probable chronic tuberculous retinitis associated with recurrent retinal hemorrhages.

#### REPORT OF CASES

CASE 1.—W. B. Man. Born in 1900.

*Family History.*—Negative.

*Personal History.*—Usual childhood diseases; tonsils out; x-ray of sinuses clear; teeth normal. Laboratory findings as to blood and spinal Wassermann, renal function, basal metabolism, blood chemistry, urethral smears, showed no marked pathology. Positive Von Pirquet. Constipated; nose-bleeds; general physical findings—those seen in an active normal young man with the exception of low-grade pulmonary changes with areas of fibrosis in both lungs.

*Ocular History.*—On September 1923 had recurrent retinal hemorrhages in left eye. Eye was finally enucleated two years later because of inflammatory changes. Report on sections made by Doctor Finnoff shows changes suspicious of tuberculous origin, but not sufficiently characteristic for a positive diagnosis. No tubercle bacilli found.

In February 1927, multiple retinal hemorrhages occurred in right eye, largely confined to the superior nasal vein. Vision reduced to light and shadow only, for a period of nine months, during which time he had learned the use of Braille.

In October 1927, following gradually increased doses of B. E. tuberculin, using the method in practice at the Knapp Memorial Hospital, vision gradually increased with the clearing of the vitreous and cessation of hemorrhages. Vision now 6/XV and No. 1 Jaeger at 20 centimeters, with his original lens correction. Fundus picture that of retinitis proliferans with organized exudate in the vitreous; an elongated and distorted disk and long narrow bands of apparently scar tissue extending radially upward along the tracts of former blood vessels. Periodic recurrent hemorrhages have taken place, usually associated with an acute cold or overexertion. Vision on February 1930: 6/IX and No. 1 Jaeger at 30 centimeters. Vitreous clearing from a recent hemorrhage, following a strenuous trip to a high altitude. Prior to last hemorrhage the vitreous was clear with the exception of a few small floating patches of organized exudate which had become attached to one of

the tributaries of the superior nasal vein. This vein for several disk diameters, prior to its union with the superior temporal vein, is bordered by bands of scar tissue in places, distorting but not markedly obstructing the venous flow. The remainder of the retina and disk appeared normal. At no time have the retinal arteries been disturbed to any appreciable degree. For roentgenograph of chest, see Fig 1.

CASE 2.—G. V. Man. Born in 1900.

*Family History.*—Negative for tuberculosis, except mother's sister died of a pulmonary disturbance at the age of thirty-five. A sister and a brother died in infancy of "brain fever."

*Personal History.*—Usual childhood diseases. Tonsils out. Occasional nose-bleeds.

*Ocular History.*—No eye trouble until April 1920, when he noticed lines and crosses disturbing vision of left eye. No pain, but slight headache. Vision decreased rapidly to light and shadow only in this eye and suggested seeing through a red cloud. One month later the vision of the right eye became affected; a ring-shaped blur, red in color, was noticed by him floating before the vision of this eye. Vision now light and shadow only. A thorough physical and complete laboratory examination was essentially negative after admission to the Barlow Sanitarium in January 1926, except suspicious areas of fibrosis of each lung. Under observation he was found to run an evening temperature elevation and finally tubercle bacilli were found in his sputum. Von Pirquet positive.

*Ocular Findings in September 1927.*—Right eye: Anterior segment normal. Right fundus: Vitreous clear except for three small, and one large, floating masses of organized exudate, each attached to a retinal vein by a long fine fibrous band. There was present a small retinal area in the superior nasal zone suggestive of possible detachment, but not progressive. Both the superior nasal and temporal veins peripherally were markedly disturbed in their course. These veins, for a disk diameter, were shrunk to one-third their normal size, but still carried blood and were apparently normal on each side of the lesion. The retina in the immediate neighborhood was considerably altered in structure, being granular in appearance and containing many fine white lines, evidently scar tissue. Along the course of the inferior ophthalmic vein were small areas of retinochoroidal atrophy—some pigmented, some nonpigmented—but all quiescent and about the diameter of the vein in size. Vision: 6/VI plus and No. 1 Jaeger at 36 centimeters. Vision in left eye improved; now 4/XXX. Anterior segment normal except iris had changed color to a greenish from a blue-gray, and small vacuoles were seen deep in the lens structure. A mass of floating exudate in the vitreous, otherwise clear, prevented details of the central and superior nasal areas being clearly seen. The disk appeared elongated vertically and a band of organized exudate extended downward for three disk diameters along the inferior vein, whose walls were thickened and at times covered. Peripherally, these veins appeared normal. This young man has had no definite hemorrhages in the last year while employed regularly at gas-filling stations. Tuberculin B. E. has been continued for a period of over four years with apparently only favorable results. For roentgenographs of chest, see Figs. 2a and 2b.

CASE 3.—H. A. J. Man. Age, 32.

*Family History.*—Negative for tuberculosis.

*Personal History.*—Usual childhood diseases. Tonsil and adenoid operation in childhood. Second tonsillectomy in 1926. When in college right antrum was washed out and abscessed tooth removed. Put on glasses in 1925 for relief of headaches. Has been subject to frequent acute colds all his life. In January



1924, acquired an acute cold, which persisted and extended to left ear and left ethmoid, requiring drainage. Noticed a black spot before vision of right eye when reading. A little later was found to have a retinal hemorrhage into the vitreous of this eye. This was considered of tuberculous origin and he was placed on gradually ascending doses of tuberculin. Was carefully studied by well known oculists and internists. Vision improved to 6/IX and there was noted an area of acute retinochoroiditis, temporal to the disk and of a similar size, which later subsided to an atrophic area with a little pigment along its margin and several radiating lines of atrophy. Visual field showed paracentral scotoma (Fig. 3). Following an overdose of tuberculin, a second hemorrhage resulted, but there has been none since in this eye. Von Pirquet positive.

Two years later noticed a black spot, disturbing the vision of the left eye, which was found to be due to some eight venous punctate hemorrhages in an area temporal to the left disk. A true counterpart as to location of the lesion of the right eye. The hemorrhages rapidly absorbed, leaving only fine granular changes in this area. A slight enlargement of the blind spot was up and in, which soon disappeared. Vision again normal for him. No atrophic changes visible. Disturbance apparently confined to deep retinal structures.

Three years now have elapsed under tuberculin therapy, with no recurrence. Several physical and complete laboratory findings have proved negative except for the upper respiratory disturbances already noted; Von Pirquet plus, and low-grade changes at the base of each lung, probably tuberculous, though apparently quiescent when last examined. For roentgenograph of chest and visual fields, see Figs. 3a, 3b, and 3c.

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CASE 4.—Mrs. G. D. Age, 33.

*Family History.*—Negative for tuberculosis.

*Personal History.*—Usual childhood diseases. Frequent colds all her life. Tonsils out. X-ray of teeth negative. In 1920 general physical and extensive laboratory examinations negative, except a tentative diagnosis of incipient tuberculosis.

*Ocular History.*—Two years later, synchronizing with the birth of her second child, suddenly lost the central vision of her left eye. Could count fingers at two feet, seen eccentrically. Sight has never improved. Three years later (1925), following a severe cold, noticed the nasal field of her right eye was blurred. Cleared gradually but a year later recurred, this time affecting her central vision. On looking at the eyes of a person's face, the nose appeared blurred.

*Ocular Examination.*—On November 18, 1926: Vision O. D. 6/VI plus and No. 1 Jaeger at 36 centimeters, with distortion of vertical lines. O. S.—Fingers, eccentric, at two feet. Anterior segment in each eye normal. Vitreous clear. Right fundus normal except macular region. The fovea is blurred by a granular appearance of the retina, suggestive of low-grade inflammatory condition now quiescent. Left fundus showed a white, punched-out area in the macular region, about one-half disk in diameter and surrounded by pigment, evidently choroidal atrophy. Left eye remained unchanged, but right eye improved to 6/IV and practically disappearance of distortion. For visual field of right eye, see Fig. 4. Physical and laboratory findings otherwise negative.

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#### DISCUSSION

M. F. WEYMANN, M. D. (2007 Wilshire Boulevard, Los Angeles).—The mechanism producing phlyctenules can hardly be considered identical with that causing recurrent hemorrhages into the vitreous, as the two conditions do not parallel each other. Weeker's statistics definitely show that the peak of the curve for incidence of phlyctenules occurs in early childhood, while there are slight rises at the age of puberty, and during the menopause. This condition also greatly predominates in the female sex. On the contrary, recurrent hemorrhages occur most often in males and usually between the ages of eighteen and thirty. Marked chronic constipation is so often an accompanying factor of recurrent hemorrhages that it must also bear a rather important etiological relationship. By again calling our attention to the consideration of tuberculosis in these conditions Doctor Lyster has done us a valuable favor.

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JOSEPH L. MCCOOL, M. D. (1319 Four-Fifty Sutter, San Francisco).—Recurring vitreous hemorrhages as a distinct disease was first described by Von Graefe. Later Eales made some observations on the disease and it is often referred to as Eales' disease.

The etiology and symptomatology have been fully covered by the essayist.

With regard to the former, however, it is not always easy to classify these cases. While it is probably true that in many cases the vasculitis and perivasculitis of the retinal vessels are tuberculous, nevertheless I do not believe that all cases may be so classed.

Eales considered that intestinal toxemias played an important rôle. Zentmeyer and others believe that endocrine disturbances are responsible for some cases.

I can recall two cases which I believe illustrate this divergence in etiology. Parenthetically it might be said that, while it is sometimes very difficult to say that a certain case is due to tuberculosis, it is also wrong to assume that our inability to find a primary focus rules out that disease.

Some years ago a surgeon brought his son, aged fourteen years, for an examination of his one remaining eye. From the history I gathered that the boy had had a severe intra-ocular inflammation which necessitated the removal of one of his eyes. The re-

maining eye was the seat of recurring vitreous hemorrhages which at the time of the examination had reduced his vision to approximately 10/200. Lues as a cause had been eliminated, all known sources of focal infection had been removed but no tuberculin test had been made. He responded positively to this test and was promptly put on small doses of B. E. gradually increased.

His vision increased to 20/30. He was sent back to school and when last heard from had had no recurrences.

The other case was a woman, aet. thirty-two years. Vision in the right eye, 5/200; left, 20/25. This woman had recurring vitreous hemorrhages in the right eye. She had been given a course of tuberculin, but with no benefit. There were several rather interesting features which developed from the history:

1. Patient had a severe fright during a menstrual period which ceased. Almost immediately afterward, the first vitreous hemorrhage occurred.

2. Every hemorrhage which the patient has ever had came at the menstrual period.

3. If the period is delayed two days or more, the patient has a fresh hemorrhage.

Within three years, four times the vision was better for a time; three of these times occurred during a pregnancy.

The etiology in this case was probably endocrine.

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HANS BARKAN, M. D. (490 Post Street, San Francisco).—In private practice juvenile retinal and vitreous hemorrhages have been rare cases for me. I have seen more patients in the late thirties and early forties with retinal hemorrhages not explainable on any of the usual grounds. It has also not been my experience that the male sex predominates; a good number of such patients have been women. These facts only show that one man's material may shape itself quite at variance for some reason from the accepted standards, and conclusions derived from this experience only should not be hastily drawn.

In typical cases there is little doubt but that a slow tuberculous focus located in the various walls is the etiological factor. The clinical observations of Stock and Axenfeldt, Miller and Finnoff, and the pathological studies of Fleischer and Ranke all point to this. In severe cases everything may be over before we can aid. I have seen such hemorrhages massive and recurring every few days for weeks. In recurring smaller retinal hemorrhages tuberculin is worth while. Local reactions must absolutely be avoided.

Doctor Lyster has well covered an important field. In his hands and in other competent ones such cases are usually well treated. The wholesale merchant in ophthalmology either misses them, or, still worse, makes this diagnosis in all ocular conditions of uncertain etiology to the fright of his patients and the depletion of their purse.

✽

DOCTOR LYSTER (Closing).—Doctor Weymann has pointed out differences as to incidence in phlyctenulosis and retinal hemorrhage. There is, however, a suggestive similarity in etiology.

Although chronic constipation is a frequent accompanying condition, it is by no means a constant factor and probably influences the ocular disturbance as would some focal infection.

I wish also to thank Dr. McCool and Dr. Hans Barkan for their discussions. It is fully realized that neither the etiology nor its manner of producing the retinal disturbance has been definitely determined. Clinically, however, based on some known pathology and ophthalmoscopic observations, there is considerable evidence of a probable close relationship between recurrent retinal hemorrhages of the adult and tuberculous infections. The final decision will only be made when definite pathologic proof is available.

## THE LURE OF MEDICAL HISTORY

PALMARIUS (PIERRE PAULMIER)

By FELIX CUNHA, M. D.  
San Francisco

It is interesting to note that as far back as three hundred years ago anyone who dared propose any radical change in the accepted methods of treatment of the day was meted out punishment that was not only swift, but severe.

Palmarius (Pierre Paulmier), born in 1568, the nephew of an illustrious uncle-physician, who had served with Paré in the French campaigns, studied in Paris and received his license in 1596. In 1608 he published his famous "Lapis Philosophicus Dogmaticorum," the frontispiece of which is reproduced here. This work so enraged the Galenists of the time that a censure was passed upon it and its author by the medical faculty of Paris on the 28th of January, 1609. The author had taken sides with the adherents of the theories of Paracelsus and advanced the merits of the treatment of disease with preparations of gold and antimony, but particularly advocated the use of antimony. In its citation the Faculté de Paris condemned the book as being "full of errors, deceits, impostures, and lies, and

### L A P I S PHILOSOPHICVS DOGMATICORVM.

*Quo paracelsista Libanius restituitur, Schola Medica Parisiensis iudicium de Chymicis declaratur, Censura in adulteria & fraudes Parachymicorum deffenditur, asserto veræ Alchemiæ honore.*

Per P. Palmarium Doctorem Parisien-  
sem Galeno-chymicum.

*Ad Illustrissimum Cardinalem Perronium.*

*Adiecta est Historia Leprosæ Mulieris Perfanatæ.*



P A R I S I I S.

Apud DAVIDEM DOVLCEVR, via Iacobæ ad Mercurium inuolucrem.

1627.

CVM PRIVILEGIO REGIS.

Fig. 1.—Title page.



Translation of preceding title page:

THE PHILOSOPHERS' STONE OF THE  
DOGMATISTS

*Wherein the Paracelsist Libavius\* is reinstated, the Judgment of the Medical School of Paris on the Chemists is declared, the Censure of the Adulteries and Deceptions of the Parachemists is defended, while the Dignity of true Alchemy is maintained.*

By P. Palmarius, Doctor of (the University of)  
Paris in Galen-Chemistry

*To the most illustrious Cardinal Perronius.*

Appended is a History of the Complete  
Cure of a Leprous Woman.

Figure of the Winged Mercury with the  
motto: *Constans qui vagus ante, i. e., Settled*  
is the once roving mind.

PARIS

David Douleueur.  
Rue Jacob.

At the sign of the Winged Mercury.  
1627.

BY ROYAL LICENSE.†

Editor's Note.—Above translation is through the courtesy of Dr. S. L. Millard Rosenberg. The author, Doctor Cunha, is the fortunate owner of this rare volume.

as being unworthy of having seen the light." The punishment decreed was that for six months he was to enjoy none of the benefits of his degree and that he was to publicly confess and abjure all of these errors and to profit by the study of Hippocrates, Galen and the Paris School. The latter was later said by Palmarius to have been the hardest part of the punishment for him to bear. In failing to comply with this decree his name was to be removed from the role of doctors and he was to be deprived of all academic privileges, honors and emoluments. During the six months of his suspension these emoluments were to be turned over to the poor. This decree, which was signed by the dean of the Paris Faculté, was published in pamphlet form and scattered far and wide, and also sent to all of the universities of the world. When Palmarius was notified of the decree, he responded that he was satisfied with the decree of the Faculté. A short time later he wrote a second volume in which he made reply to all of the criticisms brought against his views, and particularly did not spare any of his critics.

In March 1609, a month after the decree was published, Palmarius appealed to Parliament to set aside this decree, but as mentioned in the records of the Faculté, M. Lavin, a very prominent

attorney of the day in Paris, pleaded the cause of the Faculté and Palmarius was condemned to obey the decree of the school.

One year later, in 1610, at the age of forty-two years, Palmarius was seized with a fit of apoplexy at a public tournament, and died.

450 Sutter Street.

## CLINICAL NOTES AND CASE REPORTS

### FATALITIES DUE TO CINCHOPHEN\*

By LAWRENCE PARSONS, M. D.

AND

THEODORE KIMBALL, M. D.

Los Angeles

DR. Torald Sollman, in discussing Rabinowitz's paper<sup>1</sup> dealing with this subject, pointed out that for fifteen years following the introduction of phenylchinchoninic acid into therapeutics in 1908 under the trade name of Atophan, no fatalities, due to its use, were reported. Then suddenly in 1923 a case of severe hepatitis with jaundice was reported in England.<sup>2</sup> "One is led to wonder," said Sollmann, "where were the eyes of the physicians who had been prescribing the drug day after day and observing the effects for these fifteen years."

Following Cabot's report<sup>3</sup> in 1925 of a fatal case of acute yellow atrophy of the liver due to Weldon (a cinchophen-containing rheumatism remedy), numerous articles and case reports have appeared in the literature. Dr. Warren G. Harding and the writer<sup>4</sup> reported four fatalities due to cinchophen in January of this year, and now (August) have completed a paper reporting five additional fatal cases. Including these, thirty-four deaths due to cinchophen and its derivatives will have appeared in the literature.

The various trade names for phenyl-cinchoninic acid (United States Pharmacopeia, cinchophen) and its derivatives serve only to confuse the physician and to disguise its presence. Atophan was the first to be used, followed by a number of others such as novatophan, atophanyl, oxyliodid, quinophan, di-iodo-atophan, biloptin, neocinchophen, agotan, phenoquam, leucotropin, fantan, tolysin, iriphan, phanurotropin, and atokinol. Weldon, above mentioned, Renton's Hydrocin (Pasadena, California) and at least one mail-order rheumatism "treatment" (Van Ard Sanatorium, Chicago), are cinchophen-containing remedies that have resulted in death to their unwitting victims.

The cause of death is due to severe toxic necrosis ("acute yellow atrophy") of the liver. Beaver and Robertson<sup>5</sup> have recently described at length the pathologic changes in the liver. The widespread disappearance of the liver cells is striking, and the size of the liver diminishes greatly as a result. The shrunken organ may be but a third its normal size and resemble cirrhosis.

\* From the Department of Pathology, Los Angeles County General Hospital, Unit No. 1.

Editor's Note.—See, also, article in current California and Western Medicine on "Cinchophen Poisoning" by Emil Bogen, M. D. (page 269).

\*Editor's Note.—Andreas Libavius (or Libau) (1546-1616) was a celebrated chemist of Coburg, Germany, who, while he did belong to the Paracelsus School of Alchemy and the Philosophers' Stone, was the first to draw away from that sort of thing into real chemistry. He was also supposed to be the first to suggest the transfusion of blood in 1615.

† Editor's note.—Readers of California and Western Medicine, who perused the series of articles on "Sixteenth Century Medicine," which commenced in the July 1930 number, may remember the comment on the Gäbelthouer volume (which was printed in 1596) in relation to the application of the copyright principle. Here again, in the present volume which was printed in France in 1627, a similar application of the copyright principle is seemingly before us.

Attempts to produce changes in experimental animals are being carried out in several places in this country (Northwestern University, Chicago, by Churchill and Van Wagoner; Scripps Metabolic Clinic, La Jolla, California, by Smith, MacKay and Parsons). That success may eventually crown their efforts is to be hoped, following the favorable preliminary report of Churchill and Van Wagoner<sup>6</sup> in March of this year before the Society for Experimental Biology and Medicine. By giving twenty-seven times the usual daily dose (595 milligrams per kilo) to dogs, death resulted in from ten to twenty days. Small areas of necrosis in the liver were found at necropsy.

While it is true that the number of fatalities due to cinchophen and its allied compounds is extremely small compared with the large number of individuals taking the drug, the problem remains of whether one should administer a drug with such dangerous qualities merely to alleviate pain, since it does not cure the gout, arthritis, or neuritis for which it is commonly used. What shall we do, then, about cinchophen? Perhaps it may be better to substitute for its use neocinchophen. No fatalities have so far been reported from this drug.

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#### TROPICAL MEDICINE\*

THE EIGHTH CONGRESS OF THE FAR EASTERN  
ASSOCIATION OF TROPICAL MEDICINE AT  
BANGKOK, SIAM

By A. E. LARSEN, M. D.  
San Francisco

SIAM is a nation which has only recently lifted the veil of an ancient civilization. In the dense jungles and swampy lowlands are eleven million inhabitants adhering to ancient habits and customs. Intercommunication is limited by the nature of the country and by the fact that there are very few railroads or highways. Even with this tremendous handicap the government, one of the few absolute monarchies of the world, has been making rapid progress in "catching up." They have drawn freely on the talents of England and America. Scientists in various fields have been imported to organize their schools and universities. Many native students have been sent abroad to study.

The city of Bangkok, the Venice of the East, provided a rather incongruous setting for the medical classic of the tropics. Everywhere about a small modernized district, evidences of its

past can be seen. Beautiful temples with their Buddhistic images; students of Buddhism with their bowls for food offerings in their long yellow robes; miles of canals or *klongs* covered with picturesque *sampongs* and densely lined with bamboo huts in which thousands of Chinese and natives live under primitive conditions. All this is a forceful reminder of the age of their civilization.

However youthful in scientific endeavor, the ability of the Siamese as hosts could hardly be excelled. The scientific events were well arranged. Well-educated army and naval officers, most of whom spoke French, English, or Malayan, acted as guides to small groups. The entertainments revealed the East in all its splendor. There is probably no nation in the world today that can rival the Siamese in the purity of their traditions and in the beauty with which these are adorned. In the King's palace, gardens, and theater, hundreds of perfectly trained, beautifully costumed actors and actresses revived old traditions in depicting national dances and episodes of the Ramayana.

Gathered in this setting, for the primary purpose of advancing the science of tropical medicine, were some one hundred and sixty physicians. They were from all parts of the world. Java, India, Federated Malay States, Indo-China, Sumatra, Borneo, Philippines, China, and Japan were particularly well represented. Many of these men were from isolated corners of the world and were seeing fellow physicians for the first time in three years. When gathered together at various formal events the variety of languages, dress, uniforms, and decorations created an Old World spectacle.

From this exotic atmosphere the scientific program settled to the usual stereotype routine of medical conventions. The subject range naturally differed from our temperature zone programs. In a region swept so often by various epidemics, public health problems assume magnified proportions. More time, therefore, was allotted to the Division of State Medicine and Hygiene. Outstanding in this section was a paper on "The Yellow Fever Problem of the East," read by Doctor Snijders, professor of tropical medicine at the University of Amsterdam. He discussed racial immunology in an attempt to give a reason for the nonexistence of yellow fever in the Far East. The vector, *Aedes aegypti*, is common, but the virus has not made an appearance. The rapid travel of the present age considerably enhances the chances of its introduction. To prevent such an occurrence important resolutions were passed. Airplane traffic was to be strictly quarantined and the importation of infected mosquitoes for experimental purposes prohibited.

Dr. Ludwick Anigstein, who has been working at the Institute for Medical Research at Kuala Lumpur, Federated Malay States, reported on tropical typhus fever. This disease is found in British Malaya and occurs as the W. or urban variety, and the K. or rural type. The former is less common, but the rural or "scrub" variety is found especially among workers on the oil-palm

\* This account submitted by A. E. Larsen, M. D., delegate to the Congress from the University of California.



estates and on land covered with *lalang* grass. It is from this latter the infection seems especially to come.

Other subjects occupying important places on the program were malaria, plague, leprosy, intestinal infections and bacteriology, fungus diseases and helminthology, and medical entomology. It was strange to see medicine and surgery relegated to minor places.

Generally speaking, the program indicated that much time, work, and money will be necessary before the various endemic and epidemic diseases will be under control. Even Java, with the most highly developed medical system in the tropics, must still be regarded as being in the pioneer state. The lack of education of the masses, combined with tropical conditions, are constant obstacles.

One incident of interest to physicians of California occurred when the executive council elected Dr. A. C. Reed of the Pacific Institute of Tropical Medicine, Hooper Foundation for Medical Research at the University of California, secretary for the United States.

University of California Medical School.

## TYPHUS FEVER—IN MEXICAN RAILWAY CAMPS\*

A NOTE OF A 1916 SURVEY OF SOME MEXICAN RAILWAY CAMPS—FOR THE CONTROL OF TYPHUS FEVER

By W. T. CUMMINS, M. D.  
*San Francisco*

IN consequence of the report that typhus fever had been present in the spring and summer of 1916 among some newly arrived Mexican immigrant laborers who were quartered along the Southern Pacific Lines, the writer was directed by the chief surgeon, Dr. F. K. Ainsworth, to proceed to Bakersfield, California. Dr. James G. Cumming of the California State Department of Health, Dr. H. F. Senftner of its Bureau of Communicable Diseases, and the writer began on October 1, 1916, to make a sanitary survey of the railroad's Mexican camps. The San Joaquin and Los Angeles Divisions were inspected from Traver to Calexico and Yuma. The writer alone inspected the camps of the Tucson division from Yuma to El Paso. Seven cases of typhus fever were seen on the San Joaquin division, and four others had been recently reported. None was seen nor had been recently reported on the Los Angeles division. Two cases on the Tucson division were seen and one had been recently reported.

Including a visit at El Paso and an inspection of the Mexican delousing station at Juarez, the survey lasted fifteen days during which thirty-eight camps were visited. At these camps an examination of the Mexican laborers and their families was made in reference to infestation, as

well as a survey of the surrounding sanitary conditions. Demonstrations were given at various camps for the purpose of educating the foremen concerning cleansing measures, including the hair clipping of male heads and the general use of 50 per cent coal-oil for bathing, together with the gasolining of shoes and clothing and the treatment of living quarters. Prior to this inspection, good work had been done in a number of camps through instructions which had been issued by the division engineers and road masters.

In order that information concerning sanitary measures might be more widely disseminated and coördination of the work promoted, the California State Department of Health, in coöperation with the Southern Pacific Company, issued a series of regulations for the control and prevention of typhus fever. These embodied concise but comprehensive instructions concerning bedding, beds, floors, personal cleansing measures, toilets, and garbage. Each foreman was instructed to supervise the carrying out of these measures every seven days. The company printed these instructions in Spanish and English and placarded them conspicuously in each camp. Observation camps were established and in these all newly arrived Mexicans were placed in practical quarantine for fifteen days, the incubation period of typhus fever.

During the above survey in California, the laborers examined were found to have a 35 per cent infestation with body lice, and 60 per cent with head lice. At the inspection by the California Department of Health on March 1, 1917, four months later, no infestation with body lice was noted and only one per cent with head lice. It was considered unnecessary to continue the stringent sanitary measures, but the company, on its own account, continued its supervision of camp hygiene.

From 1917 to 1930 inclusive, sixty cases, with six deaths, were reported to the California Department of Health from the entire state. One case of typhus fever was reported from the Southern Pacific Lines in 1917, and none has appeared since that time on the San Joaquin, Los Angeles, and Tucson divisions, where Mexican laborers predominate.

Southern Pacific General Hospital.

## MIGRATION OF SWALLOWED NEEDLES\*

REPORT OF CASE

By JOSEPH O. HAWKINS, M. D.  
AND  
LEO L. STANLEY, M. D.  
*San Quentin*

THE question often arises as to the course taken by foreign bodies which are swallowed, especially so in the case of sharp objects such as needles or straight pins. The following case is reported as being of interest in this respect, since

\* This paper submitted by W. T. Cummins, M. D., Southern Pacific General Hospital, San Francisco.

\* From the medical department of the California state prison at San Quentin.



Fig. 1.—X-ray plate showing two portions of needle, June 19, 1930.

there is rather an unusual migration of the foreign body through the wall of the alimentary tract, and through the body tissues, causing no sensation nor discomfort until just beneath the skin.

#### REPORT OF CASE

Patient C. C. S., age twenty-four. Entered the California state prison at San Quentin, October 26, 1929. At the time of his entry he had five scars on his lower abdomen. Of these scars one was an appendectomy, one a hernioplasty, and the remaining three were sites where portions of needles had been removed in 1928. At the time of his entry he had no complaint.

He stated that in 1922 he accepted a position in a circus side show where he was required to swallow five needles. These he took at three-day intervals and received \$10 for each performance. The needles were the ordinary cambric needles broken in two pieces and each piece measured about one inch in length. Nothing else was taken at the time, the patient merely putting the half needle in his mouth and swallowing it. He further stated that he experienced no difficulty nor discomfort while swallowing the needles.

In 1928 he noticed a pricking sensation beneath the skin of his abdomen. On three different occasions in that year he had a portion of needle removed from the lower abdominal wall.

On June 19, 1930, the patient presented himself at the hospital complaining of pain and swelling in his lower left abdominal wall. He said at this time that there were two more sections of needle in him. Examination showed a small reddened, indurated area about the size of a quarter over the left rectus muscle, midway between the symphysis pubis and the umbilicus. An object, needle-like in shape, could be faintly palpated. X-rays taken at this time showed two portions of needle. The one was superficial and under the painful area, and the other deeper and closer to the mid-line.

Under local anesthesia a small incision was made and a section of needle measuring one inch in length was removed. This portion of needle had a sharp point on one end, and the other end

was rough where it had been broken off. There was slight oxidization of the needle.

The patient has been seen from time to time since this and has no further complaint.

California State Prison, San Quentin.

*Deaths Under Anesthesia at the Adelaide Hospital During 1928.*—During the present year questions were asked in the parliament of south Australia as to the number of anesthetics given in the Adelaide Hospital over a period of twelve months and the number of deaths occurring during anesthesia. After inquiry into the above questions it was considered that the figures and some facts about the fatal cases would be of interest to members of the medical profession. In the Adelaide Hospital for the period of January 1, 1928 to May 1, 1929, that is sixteen months, 8043 anesthetics were administered, 6062 being general anesthetics and 1981 local. Out of this number, six deaths occurred, either during the administration or within two hours of the completion of the anesthetic.

Those patients who died during anesthesia were recognized as unsuited for anesthesia and were only given anesthetics to enable an operation to be performed as the last possible chance of prolonging their lives.

No patient died of asphyxia.

The patients, with one exception, were more than forty years of age.

The cause of death was apparently not associated with any particular anesthetic or mode of administration.

The cause of death was apparently heart failure, due to the effects of the anesthetic on a heart affected by severe illness or by the loss of considerable quantities of blood.

Deaths will continue to occur during anesthesia when the gravity of the condition needing operation is fully realized.—J. W. Rollison, M. B., B. S., Anesthetist, Adelaide, Australia. *Anesthesia and Analgesia*, July-August 1930.

*Increase in Prevalence of Smallpox in the United States.*—For three years, at least, the incidence of smallpox in the United States has been increasing. Forty-five states reported 34,685 cases of smallpox in 1927, 38,114 cases in 1928, and 41,458 cases in 1929. The disease was of the mild type, and in forty-five states only 442 deaths were recorded during the three years, yet the 114,000 cases of smallpox reported during the three years represent an incalculable amount of suffering and a large economic loss to the country; all of which could have been avoided by vaccination and revaccination. One danger from smallpox lies in the fact that the virulent type of the disease may appear at any time in a community not protected by vaccination, and before the disease can be checked it may take many lives.—*The United States Public Health Service*.

Pin No. 1

Appendectomy

Hernioplasty



Fig. 2.—Showing scars on abdominal wall, June 26, 1930.



# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## CARCINOMA OF THE PROSTATE

CHARLES D. LOCKWOOD, M. D. (605 Professional Building, Pasadena).—Carcinoma of the prostate is one of the most insidious and distressing conditions met with in the practice of surgery. The diagnosis is rarely made early, partly because of the fact that the growth does not produce symptoms of sufficient urgency to demand immediate relief, and partly because physicians and surgeons are negligent in making routine rectal examinations. Indeed, carcinoma of the prostate was considered a rare affection up to fifteen or twenty years ago. About that time the surgical treatment of benign hypertrophied prostate became common, and in the routine examination of enlarged prostates it was found that a large percentage of them were malignant. It is now generally agreed that about 20 per cent of prostates removed and examined in serial sections reveal carcinoma. It is estimated that 20 per cent of all men over sixty years of age have prostatic trouble. Therefore if 20 per cent of these prostates are malignant, approximately four men in every hundred are the victims of cancer of this organ. Cancer of the prostate is about as common in men as cancer of the cervix in women, and is, therefore, a subject of very great interest to the surgeon.

The early symptoms are pain in the back, radiating down the back of the leg, and frequency and difficulty of urination. Retention of urine and hematuria are relatively uncommon. Frequency and difficulty of urination are the common initial symptoms.

Early metastasis is characteristic of cancer of the prostate. The long bones of the body are most often affected. Pains in the leg and back generally indicate involvement of the bones. Sciatica in old men, especially if bilateral, should awaken the suspicion of a malignant prostate. In the vast majority of cases the early symptoms are neglected by the patient and overlooked by the physician, and when the surgeon or specialist is finally consulted the condition is already hopeless. An early diagnosis can be made by one trained in rectal examination of the prostate. Hard nodules on the surface of the prostate nearest the rectal wall are quite characteristic. The rectal canal is not invaded until late, but patients often complain of painful defecation even before the growth has produced obstructive symptoms.

*Summary.*—Cancer of the prostate is very common, is usually unrecognized and is symptomless for the first few months.

The early symptoms are pain, obstruction to urinary flow and frequency. Carcinoma of the

prostate should be thought of in every case of urinary obstruction in men over fifty years of age.

Metastatic carcinoma should always make the diagnostician think of the prostate as a possible seat of the primary growth.

\* \* \*

MILEY B. WESSON, M. D. (939 Medico-Dental Building, San Francisco).—Four men out of every one hundred who live to be sixty years of age have cancer of the prostate. In large clinics five per cent of all urological cases seen are cancers of the prostate. One out of every five patients who have enlarged prostates have cancers. It is generally accepted that one-third of all cases of cancer of the prostate show bony metastases when they first consult a doctor. A fair percentage have involvement of pelvic and abdominal lymph glands (not as a rule demonstrable), and a small percentage have vesical metastases. Hence, at least 50 per cent are beyond the possibility of a cure before the diagnosis is made. If a rectal examination were made an integral part of every routine physical examination, it is probable that more cancers would be found early.

Prostatic carcinoma is, on the whole, a slow-growing tumor and at first may cause no symptoms. In many cases it exists for years before it makes itself known to the patient or is discovered; consequently too often it is only in the end stages of the disease that it is diagnosed and as a result longevity is short. We may have well-established carcinoma with metastases in almost any part of the body without the prostate being suspected as the primary site because of the absence of definite urinary symptoms. In many instances extensive involvements of the seminal vesicles and metastases in the bones occur without glandular involvement. Lymphatic or bony metastases may develop and the absence of all urinary obstruction give the first symptom of prostatic carcinoma in the form of pain or even a pathological fracture of the femur.

The two commonest symptoms are urinary obstruction and pain, and as a rule the pain appears first. This is of two types: (1) local—the discomfort in the bladder, urethra, and penis takes the form of frequency and dysuria, and is secondary to an obstruction or due to a cystitis. The obstruction is due to a cancerous stricture of the prostatic urethra or is coincident with a benign prostatic hypertrophy, which occurs in 61 per cent of the cases of cancer; and (2) distant—as in the legs, hips, back or chest, which is probably due to nerve-root involvement by metastases. The

cancer cells pass through the lymph vessels and lodge in the nodes, which lie as high as the bifurcation of the aorta. Eventually they pass through all lymph vessels of the body and even into the blood stream; hence their spread is not limited. These metastatic masses pressing upon the sacral plexus cause pain in the legs and as the masses increase in size, may compress the veins to such an extent as to result in edema of the legs. In the course of time the patient will show loss of weight and strength, with anemia; palpable tumors; edema of the legs or scrotum; posterior urethral strictures; and rectal disturbances due to encroachment of the perirectal tissue or invasion of the lumen.

The first symptoms of prostatic carcinoma may be in the form of arthritic pains or even a pathologic fracture of a long bone. The osseous system is eventually invaded in almost every case. There is a marked predilection for the bones of the vertebral column and pelvis. Hugh H. Young believes that *the presence of metastatic growths in bones always suggests prostatic origin* even if there have been no local symptoms. The usual roentgenologic picture is that of a change in the architecture, a condensation process without destruction of the bone. There is an actual laying down of new bone that results in a general appearance of spottiness, and at the same time an increase in the size of the bone. Too many patients are treated for an osteo-arthritis for months before the orthopedist's attention is directed to the proper diagnosis through the development of urinary symptoms. An unexplained persistent backache in a man past the age of fifty should always suggest carcinoma of the prostate.

Prostatic cancer practically always originates in the posterior lobe. There may be extensive growth in the prostate and seminal vesicles without any urethral obstruction unless there is a concomitant benign prostatic hypertrophy or a median bar present. Denonvilliers' fascia limits the spread of cancer posteriorly, consequently it first extends upward to the seminal vesicles and downward to the membranous urethra. Eventually it invades the triangular ligament and, breaking through, attacks Cowper's glands and passes on into the urethral bulb. It may invade the cavernous tissue of the bulb the full length, and when both corpora cavernosa are invaded the patient will have a constant priapism due to distention from cancer cells. Later in the disease it may extend anteriorly through the bladder wall, and in time may break posteriorly through Denonvilliers' fascia and invade the rectal wall. The stricture of the rectum that eventually develops may be caused both by pressure from without and the growth within the rectum. There is seldom sufficient necrosis to cause a recto-urethral fistula.

Diagnosis in early cases is based wholly upon rectal palpation; consequently if these cases are to be found at a time when they can be cured, a proper rectal examination will have to be made routinely upon all males over forty years of age. Not until then will more cases be diagnosed while

there is still a possibility of a cure. The average doctor has neither been taught how to make a rectal examination nor how to interpret his findings. The first requirement is a finger that is over three inches in length. At the time of palpation there are three points that must be considered: (1) nodules in the prostate, markedly firmer than the surrounding gland, are suggestive of cancer; (2) extensive induration with adhesions and fixation of the prostate, especially if involving the seminal vesicles, suggests cancer even though the induration is not stony; (3) thickening of the membranous urethra and inter-vesicular notch, with fixation and obscuring of outlines is indicative of cancer. The cystoscope gives very little definite help except when used as an aid to palpation. With a finger in the rectum, as the cystoscope is withdrawn with the beak turned downward, an idea is obtained of the thickness of the vesical lip and its stage of induration. In far advanced cases it is often impossible to differentiate cancer and tuberculosis, and the prognosis is equally grave. There is nothing characteristic about the prostatic or seminal vesicle secretions in the case of cancer, but in cases of tuberculosis, tubercle bacilli may be found. Prostatic calculi may cause confusion, but an x-ray picture will quickly make the differentiation. In all patients there should be pictures made showing the lumbar vertebrae, pelvis and upper end of the femur, and before surgery is considered, of the lungs.

The treatment varies with each patient. If the diagnosis is made while the cancer is limited to a nodule in the prostate, radical prostatectomy which removes the entire prostate and seminal vesicles and neck of the bladder, including the proximal half of the trigon, will produce a cure. If the disease is far advanced and the patient is suffering from urinary obstruction due to cancerous involvement of a benign hypertrophy, then a partial prostatectomy will have to be done and the lobes instead of being dissected out will probably require the use of a curette to remove. In the very common type, where the obstruction is due to a cancerous bar, one of the various forms of punches will furnish relief. In all cases radium should be used either in massive doses or by implantation of emanations. This can be done through the operative incision, or by means of needles introduced through the perineum, or through cystoscopic implantations. Deep x-ray therapy is probably our most valuable agent, for although it is doubtful if it ever produces cures, it at least keeps the patient comfortable and has been known to prolong life eleven years or more. When we consider that the diagnosis at present is generally not made until the patient is about sixty years of age, the prolongation of life for that many years indicates that deep therapy should be used in all cases. The popularizing of routine intelligent rectal examination will result in early diagnosis and a corresponding increase in the number of cures.



ROBERT V. DAY, M. D. (1930 Wilshire Boulevard, Los Angeles).—It is a lamentable truth that carcinoma of the prostate, when it reaches the stage that is definitely diagnosable, is seldom curable.

The most radical procedures, comprising surgery, roentgen ray, and radium, either individually or in various combinations, have failed to cure in such an overwhelming percentage of cases (less than four per cent of cures having been reported) that their employment, except for palliative purposes, is hardly justified. For the palliative objective, however, surgery is quite imperative in more than 90 per cent of cases, and when well advised and properly executed, and attended with adequate, intelligent, and diligent after-care, is a godsend to these otherwise intensely suffering individuals. Radium has definitely failed in this anatomical area, at times resulting in quite dreadful sequelae with hardly any compensating benefits. Palliative roentgen irradiation in measured and reasonable doses, not too oft repeated, as recommended by Francis Carter Wood and others,\* is exceedingly useful in relieving the so-called root pains and allied neuralgias due to metastatic infiltration around, and resultant pressure on, the pelvic plexuses, and sometimes involving other nerve trunks. Such pains themselves are evidences of metastases, which means that only palliative treatment is justifiable, a cure being out of the question. Occasionally bleeding is controlled by irradiation, but such relief is only temporary. Bleeding is much better taken care of by cystostomy, sometimes supplemented by partial enucleation or partial excision where that is practicable.

In the exceptional case in which bleeding is not controlled by the above measures, moderate irradiation may be helpful. Farther than the above-cited indications, the use of roentgen-ray therapy in carcinoma of the prostate is clinically wrong, theoretically illogical, and, in practice, results in nothing but increased suffering for the patient. Roentgen irradiation, even with the newest huge transformers and apparatus operating under nearly a million voltage, has failed to effect cures or even bring about a noticeable increase in the percentage of so-called arrests. Unlike carcinoma of the uterus and its adaptability to treatment by radium, the anatomical relations of the prostate to the posterior urethra, anus, lower rectum, and bladder, render it a most unfavorable region for the employment of intensive irradiation. From the standpoint of pain resulting therefrom, lasting seldom less than eighteen months, and ordinarily until the patient's demise, the prostatic urethra, lower rectum, and bladder are exceptionally sensitive. Irradiation results in peculiar interstitial changes in the walls of such tubular or semi-tubular, highly muscular structures as the posterior urethra, lower rectum, and bladder, whose function it is to expand and contract into cavities of varying capacities. The histologic picture is that of an active subacute

inflammation, with infiltration and edema, and with immature fibrosis. It takes years for the resolution of the interstitial infiltration, consisting of many varying types of cells, and for the formation of adult scar tissue. There is a partial splinting and pressure on nerve filaments, because of which the slightest muscular contraction or expansion of the hollow tubular organs spells intense suffering to the patient. After true fibrosis has occurred (if the patient is so unfortunate as to live that long) permanent suprapubic drainage is almost inevitably imperative. Besides such interstitial phenomena, irradiation causes the mucosa of the posterior urethra and trigon to become eroded, with a marked increase in the ammoniacal content of the urine and calcareous incrustation.

Radiotherapeutists claim a great many arrested cases. But who would care to go on living as an arrested case, and be obliged to endure the effects of intensive irradiation of the prostate and contiguous structures, given over a sufficiently long period to produce an arrest. The remedy is worse than the disease, even for those few who are cured or arrested, to say nothing of what is suffered by those who get neither cure nor arrest, but nevertheless must endure the dire effects of the remedial agent.

In nearly every instance the patient with prostatic carcinoma presents himself for relief of pain associated with the urinary act, or with complete retention. In fully 65 per cent there is an associated benign hypertrophy which is the real cause of the obstruction and pain. Sometimes a prostatic bar or carcinomatous stricture of the posterior urethra is responsible. It is indeed a rare occurrence that a patient presents himself at such an early stage of the disease that a radical resection of the prostatic urethra, bladder neck, trigon, and seminal vesicles, as well as the prostate itself, would offer any probability of cure. Even Young, who devised this radical operation, performed it in only four per cent of his cases. In its extremely limited field, it is unquestionably the method of choice, but the carcinomatous process must be confined to one or two small nodules with no surrounding infiltration, hardness, or fixity of the prostate in the pelvis, and obviously no metastasis.

If there is much associated benign hypertrophy and resultant obstruction, then a permanent cystostomy for drainage and relief of the dysuria is indicated. If the adenomatous portion of the prostate so protrudes into the bladder that a suprapubic drainage tube rests on a hypersensitive area, then a more or less complete enucleation of this adenomatous portion makes for subsequent comfort. Otherwise a simple cystostomy is preferable. In the absence of benign hypertrophy, if there is only a moderate obstruction due to a median bar, which so often accompanies a prostatic carcinoma, a Punch operation may sometimes (but rarely) afford relief. Occasionally, enucleation may be so thorough that the suprapubic sinus closes normally, and the patient enjoys a pretty comfortable life for a period vary-

\* Radiology, March 1931, page 291.



ing from six to eighteen months before it is necessary to establish permanent suprapubic drainage.

*Conclusions.*—1. Carcinoma of the prostate, as seen clinically, is almost never curable. If seen at a sufficiently early stage, a radical resection (not a classical prostatectomy) is justified. Otherwise, attempts at cure in clinically diagnosable cases only result in increased suffering.

2. Palliative measures are necessary and desirable, and may be classified under three heads, namely: (a) Surgery. (b) Palliative irradiation. (c) Opiates.

Cystostomy, sooner or later, will be found indispensable, and should not be unduly postponed if dysuria and obstruction are marked. Enucleation of that portion of the prostate involved in the associated condition of benign hypertrophy, as well as the resection of bars when present, often result in a period of six to twelve months' comfort and natural voiding. Palliative roentgen-ray irradiation for root pains is useful. Opiates should not be withheld when needed.

3. Most patients in whom the prostate, the adjacent bladder wall, and the lower rectum have been intensively irradiated, as a rule, must endure greatly increased pain during the remainder of their lives as a result of such irradiation—unnecessarily, we believe, and without adequate compensating advantages.

4. Adequate management of the psychology of the cancer state should be brought about only by methods that are not productive of distress.

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*Poliomyelitis Prevalent in New York City.*—A marked increase in the prevalence of poliomyelitis is reported in New York City by the *United States Daily*, the number of cases of the disease having increased from 5 to 159 during the period from July 1 to 25.

This increase has been so rapid that the city health commissioner, Dr. Shirley W. Wynne, and Dr. Thomas Parran, Jr., state health officer of New York, called a special conference last week to consider measures of preventing further spread of the disease.

Assistant Surgeon-General C. E. Waller and Surgeon W. T. Harrison attended this conference as representatives of the U. S. Public Health Service.

Preliminary reports show, however, that Massachusetts and Connecticut also have had increases in the number of cases of infantile paralysis, although the higher rates of increase in these two states are not so pronounced as is that of New York. Additional information made available follows:

The increase in a period of less than twenty-one days of from 5 to 159 cases of infantile paralysis in New York City is significant, not because of the actual number of cases at the present time, but because of the rapid rate of increase. Strangely enough, this outbreak has occurred in practically the same center as did the last serious outbreak in 1916.

The Public Health Service is seeking more adequate statistics on the prevalence of infantile paralysis in areas adjacent or near New York. Figures reported up to July 25 show that seventy-nine cases have been reported in Massachusetts since January 1. Of this total number, however, forty have been reported since July 1, and fourteen cases have been reported in the week ended July 25. A faster rate of increase in prevalence likewise has been noticed, therefore, in Massachusetts during the last three weeks.

Connecticut has reported nineteen cases of infantile paralysis since July 1. New Jersey reported eighteen

cases and Pennsylvania twelve during the same period between July 1 and 25. More complete figures for all New England States are being sought, however.—*New England J. Med.*, August 6, 1931.

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*Character Greater Necessity Than Learning.*—Let me quote a sentence or two which I recall from Doctor Hutchison's address: "What we need for the attainment as individuals is not more knowledge but a change of heart. We hear such catch phrases as a nation's health is the nation's wealth, and health is the country's asset. Believe me, a country's greatest asset is character."

It seems to me that Hutchison has stated, for all time, a great truth. A great nation is truly built upon sterling character.

This leads me to repeat that which I have said in other speeches often during the past two years in my journeyings hither and yon about the country, that by the ever-increasing tendency toward paternalism we are not only teaching self-dependence but are steadily weakening character in the individual. We are robbing him of the habit of the necessity for the thought of tomorrow, permitting him to slumber on thoughtlessly through today. In the last analysis we shall find that this has not been a salutary practice. He that would enjoy a safe and comfortable old age must lay for himself the foundation in early life.—*Address*, William Gerry Morgan.

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*The Normal Tonsil.*—At a recent meeting of the Section of Laryngology of the Royal Society of Medicine there arose a question which is perhaps not generally recognized. E. A. Peters demonstrated some sections of tonsils and from the changes present concluded that it was easy to understand that more symptoms arise from septic tonsils than from dental apical abscess. Dan McKenzie said that the use of the word "sepsis" in connection with tonsils is ridiculous, as all tonsils are septic. T. B. Layton submitted that the only normal tonsil is the inflamed tonsil. He said that this is a paradox that has to be faced, since a structure is normal when it is performing its functions; and the function of the tonsil is to react and to resist the invasion of the upper air passages by pathogenic microorganisms. This point is not one of mere academic interest nor is it a play on words. Dan McKenzie believes that a tonsil should be judged by its behavior, not by its simple appearance or by the bacteriological reports upon it. This view must be accepted. Undoubtedly more information would be gained about the condition of individual patients and a better understanding of tonsillitis would be obtained if tonsils on removal were submitted to histological examination by pathologist and surgeon.—*The Medical Journal of Australia*, August 2, 1930.

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*Disinfectants.*—In combating contagion, modern sanitary practices have eliminated disinfectants for spraying walls, ceiling and floors of school rooms. The source of infection is the individual; so long as the infected individual is present in the room, any disinfectant that might be used on the walls or the floor would be of little, if any, value in preventing infection. Removal of the infected individual usually suffices to end the danger of spreading the infection. Soap and water is the best agent for cleaning floors, together with plenty of fresh air and sunshine. Terminal disinfection, such as fumigation with formaldehyd, has been generally discarded as valueless. In the case of lavatories, urinals, and toilet bowls, so-called germicides in reality accomplish nothing except covering up the primary odor by the stronger odor of the chemical used. "Disinfection of hands" may be obtained by a thorough scrubbing with soap and water. In laboratories in which pathologic material is being handled, a solution of mercuric chlorid or a solution containing "compound solution of cresol" may be employed.—*Journal of the American Medical Association*, March 28, 1931, p. 1098.



### California and Western Medicine

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EDITORIALS\*

COUNTY HOSPITAL PROBLEMS IN CALIFORNIA—THE EXCELLENT ALAMEDA AND SAN DIEGO PLANS OF MANAGEMENT

*Why County Hospitals Are Important to Indigent Citizens, to Physicians, and to Tax-Paying Citizens.*—County hospitals in California are important institutions.

County hospitals are important to the supposedly indigent sick and injured who are patients, because through the hospitals restoration to health is made possible for many unfortunate citizens who, under the social and economic conditions surrounding them, might otherwise find themselves face to face with permanent disability or death. (For a survey of some of the basic law having to do with the admission of indigent citizens to county hospitals in California, see CALIFORNIA AND WESTERN MEDICINE of March 1931, page 219.)

County hospitals are important to members of the medical profession because, largely through the gratuitous and beneficent efforts of physicians, the splendid humanitarian work carried on in such hospitals is made possible. Members of the medical profession are, therefore, the major givers to both the poor and the public. The institutions become especially important to

\* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column.

doctors when conditions arise which, instead of being a reward to the profession in the form of gratitude for the services so altruistically rendered, are found to be a real menace to the scientific and economic standards which the medical profession must uphold if its members are to be in position to render efficient service to the public.

County hospitals are also important to citizens in general, because citizens at large are the taxpayers (it is well to remember that the physicians and surgeons who donate their professional services also function in this tax-paying capacity) and it is the taxpayers whose moneys make possible the financial budgets through which the administrative, housing, and nonprofessional phases of the hospitals are carried on.

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*The State and County Medical Societies Must Maintain an Active Interest in County Hospitals.*—Since county hospitals have such an intimate relationship to all citizens of California, and at times have such a very special influence on the practice standards which the medical profession must maintain if it would promote the welfare of the people and of its own guild, it follows that organized medicine should be in constant touch with the county hospitals of California.

When abuses creep into county hospitals the members of the profession who are most apt to be aware of what is taking place are the members of the attending staffs and of the local medical profession. Sometimes improper methods of management or abuses in county hospitals develop into quite acute conditions before even local physicians are aware of what has happened. Depending upon the character of such improper management or abuse, the matters may remain purely local problems or may assume such gravity that they are called to the attention of the Council of the California Medical Association. If conditions are such that local efforts at correction of the evils complained of seem insufficient to bring about a proper rectification, then the California Medical Association, through its deputized representatives, may find itself with a place in the picture.

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*Every County Society Should Have a "County Hospital Committee."*—It would be possible here to enumerate a half-dozen or more county hospitals in California, the problems of which recently have given the California Medical Association Council quite serious concern. While it is not necessary or desirable in this column to go into details on some of the county hospital complications which have arisen in different parts of the State, it is quite proper to call the attention of the members of the California Medical Association to the fact that such situations are arising with more and more frequency and in greater gravity. So much is this the case that it would seem to be advisable for every component county medical society to have a standing "Committee on County Hospital." The members of such a committee should not be willing to be satisfied

with seeing their names printed in the list of officers of the county unit, but should make it their business to survey their county hospital so that they may acquire a fairly accurate understanding of its place in their community and be able to properly evaluate its efforts and end results, for all concerned.

When it is found that management procedures are seemingly at fault or that abuses have already come into existence, then steps should be taken to acquaint the members of the county medical society in regard thereto so that constructive efforts at reform may be instituted. Otherwise the errors in procedure or the abuses may grow like weeds and, like weeds, at times be very difficult to eradicate.

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*Two Notable Plans of Supervisory Control of County Hospitals—In Alameda and San Diego Counties.*—Which brings us to where we may call attention to some notable experiments which have been made in two of the counties of California and of which the members of the component county societies of the California Medical Association should have knowledge.

We refer to the manner in which Alameda County some years ago grappled with its county hospital problem and, through a "County Institutions Commission," sought to bring about a betterment of affairs; and how, more recently, San Diego, when confronted with somewhat analogous problems, through a "County Hospital Advisory Committee," found a way out of its major difficulties.

In this number of CALIFORNIA AND WESTERN MEDICINE, excerpts and comments on the Alameda County plan are printed. (See page 331.)

In last month's CALIFORNIA AND WESTERN MEDICINE (page 244) a report on the manner in which the new system in San Diego had worked out, and a copy of the resolution which the Board of Supervisors passed when it brought the Advisory Committee into existence, were printed.

By virtue of some twenty-five years' active and continuous service on the executive medical board of the Los Angeles County Hospital, the editor is inclined to think that these Alameda and San Diego plans for the better government of county hospitals are plans which are worthy of intensive study by all component county societies of the State, but especially so by those county medical societies in whose communities county hospital situations are not all that might be desired.

It is very much to the credit of the Alameda and San Diego County Medical Societies that members and representatives of those component county units of organized medicine in California had very considerable to do in promoting the plans which made possible a better state of affairs. In Alameda County, special credit is due Dr. O. D. Hamlin, who in an emergency was willing, without pay, to shoulder the responsibility of superintendency of the County Hospital activities until a better organization plan could be put into operation.

*The Essence of the Alameda and San Diego Plans.*—The essence of the Alameda and San Diego plans, insofar as removal of major abuses are concerned, seems to hinge on this, that through the "County Institutions Commission" and the "Advisory Committee" the members of Boards of Supervisors of those counties have been relieved of much of that lay political pressure through which influence, errors in management and abuses are often able to get an initial foothold in county hospitals.

In other words, the plans work out well in practice, not because they are complicated or grandiose structures, but simply because they are common sense expressions by means of which errors in management and abuses are detected and scotched at their beginnings and source. For, as we all know, it is a different matter when we attack an abuse in its incipency than when we find ourselves obliged to give to it and its supporters our opposition and battle under conditions more favorable to our opponents than to ourselves.

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*Every County Society Should Have an Annual County Hospital Report.*—If there are county medical societies in California which do not have standing or special county hospital committees, we hope that such societies will authorize the election or appointment of such. Further, that the members of all county hospital committees, when appointed, will recognize the seriousness of their responsibilities and proceed to get an understanding of their respective county hospitals that will permit reports being made on their conditions that will be worth the while to their respective societies and communities.

If there is one, or if there are a number of plans, whereby our county hospitals of California may be better managed than under the systems in vogue in the past and at present, it then behooves all county medical societies to work for the adoption of those changes in methods of organization which would seem best adapted to local needs. In the consideration of such new methods of procedure, the experiences of our county societies of Alameda and San Diego are worthy of most careful study and consideration.

#### LICENSED "PHYSICIANS AND SURGEONS"— WHAT DOES AND WILL THE TERM CONNOTE IN CALIFORNIA?

*The Educational Number of the "Journal of the American Medical Association."*—During the last few years the American Medical Association, through its "Council on Medical Education and Hospitals," has annually printed in its official journal a report on the status of medical education in the United States and Canada. Those reports have been quite complete and enable readers of *The Journal of the American Medical Association* to form a fairly accurate opinion concerning the standing of "Class A," that is, of "approved" medical colleges; and also of licensure



standards of the different commonwealths, and of hospitals "approved" for intern service. The 1931 report of the Council on Medical Education which is printed in *The Journal of the American Medical Association* of August 29, 1931, page 611, is worthy of serious thought.

The constant progress in the development of scholastic and training requirements in the approved medical schools of America which has been chronicled in these annual surveys, is one in which all members of the medical profession may take legitimate pride.

Nevertheless the splendid reports which are thus made should not lead physicians to think that everything humanly possible is being done in the matter of licensure of practitioners of the healing art. For if the medical profession was to draw any such conclusion it would be committing a grievous error.

\* \* \*

*California's Undergraduate Medical Schools.*—Let us take California, by way of example. In California the three Class A undergraduate medical schools—the University of California, Stanford University at San Francisco, and the College of Medical Evangelists at Los Angeles—have year in and year out continued to turn out graduates who have made excellent records for themselves in their licensure examinations at home and abroad, and who have likewise made very desirable places for themselves in active practice in the different communities in which they have taken up their work.\*

If the California and the other Class A medical schools, and of all other schools of the healing art of equal standing in America turned out a sufficient number of graduates to answer all the needs of California's population, then the citizens of our State would have little cause for complaint; at least so far as concerned the licensure standards having to do with the preliminary and professional education and training of physicians and surgeons.

\* \* \*

*California's Recognition of Sectarian or Cultist Medicine.*—Unfortunately in California, as in many other states of the Union—except in California the situation seems somewhat worse—the people of the state, through their legislature and by their own initiative vote, have seen fit to give legal recognition to sectarian schools of the healing art. Unhappily, these sectarian schools have standards of preliminary training and of professional education and training which fall far below the minimum standards laid down by the Council on Medical Education and Hospitals of the American Medical Association and by the Association of American Medical Colleges.

California has failed to recognize that, while it is quite proper to grant licensure privileges to graduates of all classes of healing arts schools, the minimum or basic standards of preliminary education and of equivalent professional training should have been made to apply to all such schools alike.

In other words, if in the way of preliminary education a full high school course and one or two years of work of collegiate standard is an essential minimum, and if as regards professional training a full four-year course of substantially the same standard as that demanded of Class A medical schools were demanded of all the institutions granting healing art degrees, then, under such conditions, but little exception could be taken if a state chose to recognize, through properly constituted licensure boards, the graduates of both nonsectarian and sectarian or cultist schools of the healing art.

But when California sees fit to establish several licensure healing art boards, which promulgate and carry out widely different standards both in preliminary education and professional training, and when the minimum requirements of the sectarian or cultist schools of healing in most instances fall very considerably and at times woefully below the minimum standards of Class A schools, then, with such conditions existing, the people of the State of California, from the standpoint of proper protection of the public health, would seem to have a legitimate right to protest. Such protest would rest on the ground that the minimum standards as to equivalent quantity and quality in training as laid down by Class A medical schools are not excessive and, being reasonable and proper, should be the basic minimums which would be demanded of all persons who sought the legal sanction of the State to go before the public, as being competent to treat the diseases and injuries of human beings.

However, and unfortunately, California adopted the course of not applying basic standards of minimum preliminary and professional education in healing art matters. As a consequence, each year sees the licensure, not only of a considerable number of medical graduates from institutions demanding proper basic minimum standards, but also witnesses the advent into the fold of licensed practitioners of an unusually large number of graduates of sectarian or cultist schools, the standards of which schools in some cases are considerably below those of the majority of medical schools of even some twenty or thirty years ago!

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*How Recognition of Sectarian or Cultist Medicine, Through Boards with Different Standards, Works Out in Practice.*—The inspection of the registration figures of Los Angeles County which were printed in the September CALIFORNIA AND WESTERN MEDICINE of last month, page 238, reveals how such a double or multiple board system works out in actual practice. The sectarian school known as the chiropractic, for instance, which secured its legal recognition in California about

\*In addition to the three schools here mentioned, California again has a fourth undergraduate medical school—that of the University of Southern California—which, beginning this fall, will give instruction not only in the freshman and sophomore curricula, but also in the junior studies; authorization for a third-year course recently having been given by the American Medical Association Council on Medical Education.

the year 1923, has since that time turned out many graduates, and the California Chiropractic Board of Examiners has granted legal recognition to a large number of such. For figures on these points see the item above referred to, and also CALIFORNIA AND WESTERN MEDICINE of July 1930, page 517, and December 1930, page 915.

From the statistics available it would appear that within less than ten years a total of about three thousand graduates in chiropractic have been granted licenses to practice the healing art in California. It is probably a safe assumption to affirm that the majority of these graduates probably did not have a complete high school education in the way of preliminary training, and that the professional curricula of their respective schools were far, far below those which would be construed as equivalent to the curricula of Class A medical schools of America.

In California and some other states—even though such sectarian or cultist graduates possess educational and training qualifications far below the minimum standards laid down by the best American and foreign schools of medicine—their graduates are none the less granted licensure privileges which permit them to go before the people of California on equal basis with graduates of Class A schools. Such a state of affairs, of course, is a dreadful inconsistency. However, at this late day little or nothing can be done in the above premises because the citizens of California through initiative vote have granted these sectarian groups legal rights which not even the legislature can change.

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*The Real Matter of Importance to the Public Health and to the Medical Profession.*—What is of importance to the people of California, however, is the attempt now seemingly being started in California which, if it goes on to fulfillment, will give a certain number of chiropractor licentiates the right to obtain from their board an extension of their fields of practice in that they would be given "chiropractor physicians and surgeons'" certificates, probably equal in scope and powers to physicians and surgeons' certificates as granted by the Board of Medical Examiners of the State of California.

For some time now, in the Sunday magazine section of the Los Angeles Times, the "— College of Chiropractic" of Los Angeles, and latterly its presumable successor, the "— College of Chiropractic," have printed advertisements which read as follows:

#### BECOME A DOCTOR OF CHIROPRACTIC

Learn a dignified profession. Students receive a thorough training at this institution. Our course is complete in every detail and includes: dissection, chemistry, x-ray, electrotherapy and obstetrics. There is an abundance of CLINIC work. *We have added an extra 1000 hours of medicine and surgery which is optional to the student.* Day and evening classes. Enroll now. Write for literature. State board quiz classes.

We have been informed that the last named school now has about sixty students to whom it has been stated it is giving a physicians and surgeons' course, with the implied understanding that such students probably later on may be able to obtain physicians and surgeons' licenses.

The story is also abroad that in one or more sections of California a representative of the above school has endeavored to collect funds for prospective legislation in 1933, which legislation, if passed, would grant physicians and surgeons' licenses to those individuals who had pursued courses of study such as that put forth in the advertisement above quoted.

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*California's Types of "Physicians and Surgeons" of the Present and Future.*—If the above information be not in error, California may add to its list of physician and surgeon licentiates a new group, so that it would then have the following ensemble:

1. As at present, graduates of nonsectarian medical schools holding "physicians and surgeons'" certificates granted by the Board of Medical Examiners of the State of California.

2. As at present, graduates of sectarian osteopathic schools, holding "osteopathic physicians and surgeons'" certificates granted by the California Osteopathic Board of Examiners.

3. Perhaps in the near future, graduates of sectarian chiropractic schools who would hold "chiropractic physicians and surgeons'" certificates, granted by the California Chiropractic Board of Examiners.

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*Another Interesting Expression of Cultist Psychology.*—From the news items in the California Board of Medical Examiners column in this issue is taken an item which in turn was previously printed in the San Francisco Call-Bulletin of August 14, 1931. Readers of CALIFORNIA AND WESTERN MEDICINE can draw their own conclusions therefrom. The excerpt reads thus:

"Move to obtain legislative action which *would revoke a surgeon's license in event it could be shown the surgeon performed an unnecessary operation* was launched in San Francisco today by the California Chiropractors' Association. Chiropractors are not allowed to practice surgery. According to Dr. Harry C. Bond, president of the organization, seventy-five members voted to draft a measure on the subject for submission to the next legislature."—San Francisco Call-Bulletin, August 14, 1931.

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*Why This Presentation Is Here Made.*—All the above is here printed in the hope that the component county societies of the California Medical Association will give attention to a subject which is seemingly somewhat important. Let it be remembered that if such legal sanction is once obtained by chiropractic or other sectarian and cultist groups, whereby "physicians and sur-



geons' " certificates could be granted by their respective boards, that it would then be practically impossible to take away such rights.

Wherefore it would appear that the time to think and do, is beforehand and not afterward.

#### A WELL-MERITED RECOGNITION

*Dr. Jacob C. Geiger Appointed Health Officer of San Francisco.*—A well-merited recognition to a colleague of our State, who for more than twenty-five years has given to the people of California most efficient service in all lines of public health endeavor, was rendered when Dr. Jacob C. Geiger on September 16 was appointed health officer of San Francisco, to succeed the late Dr. W. C. Hassler.

In the correspondence column of this number of CALIFORNIA AND WESTERN MEDICINE is printed a letter from the secretary of the Western Branch of the American Public Health Association, which is worthy of perusal by all California Medical Association members who believe in non-partisan procedures for public health appointments. It may be taken for granted that all physicians do believe that public health officers should be appointed on the basis of merit and capacity of service. Also that physicians generally are distinctly displeased when they note the intrusion of partisan lay political influences into public health activities, such as not infrequently takes place.

It is very much to the credit of Mayor Angelo J. Rossi of San Francisco that he saw fit to suggest to the San Francisco Board of Health the appointment of an advisory committee to suggest a physician to fill the vacancy caused by the death of Doctor Hassler. The letter in the Correspondence column tells about this. (See page 328.)

Some of the readers of this JOURNAL may have noted that in the Twenty-Five Years Ago column of last month's CALIFORNIA AND WESTERN MEDICINE, was printed an excerpt from a paper which the late Doctor Hassler read before the San Francisco County Medical Society in August 1906, and in which he reported on some of the major problems and work which confronted his department after the great catastrophe which befell San Francisco on April 18, 1906. It was a shock to the editor when he later found that this brief excerpt would be printed in the same issue of CALIFORNIA AND WESTERN MEDICINE in which it would be necessary to chronicle the sudden death of Doctor Hassler, which took place on August 1, 1931.

There have been few public health officers in California or elsewhere who have so endeared themselves to their communities as did Doctor Hassler.

His successor, our fellow member of the California Medical Association, Dr. Jacob C. Geiger, has made for himself an enviable record of honorable achievement. In his new responsibilities we can wish for him nothing better than that he shall carry on as ably and as efficiently in his service to San Francisco and California, as did his predecessor, the late William C. Hassler.

*Poliomyelitis.*—Of all the infectious diseases of the nervous system, poliomyelitis shows the most definite seasonal prevalence. The disease is always at its height in August, September and October, and this has been the case not only in years when we have had a severe epidemic, such as 1916, but also at other periods when relatively few cases have been reported in Massachusetts. This year we may expect the same phenomenon to take place and it is the duty of physicians, especially those in general practice, to watch carefully for the disease. So far, the State Department of Public Health has been notified of about sixty cases, thirty-five of which were reported in June.

If physicians are in doubt in regard to the diagnosis, a special service is now offered by the Harvard Infantile Paralysis Commission to aid in reaching a definite conclusion. Investigators will be sent out by the Commission, supplied with the proper diagnostic equipment, as well as convalescent serum. This service is offered to physicians to aid in the diagnosis and not to supplant them in the treatment of the disease. If, however, the investigator feels, at the time when the lumbar puncture is done, that the diagnosis is reasonably certain, he may, and ought to, give convalescent serum at once. Later injections may be given by the physician in charge.

Poliomyelitis is one of the most terrifying diseases that we have to deal with. If often strikes particularly hard and, if not fatal, it may leave the patient handicapped, so as to preclude the possibility of earning his living in the future. The after-care of patients with poliomyelitis, therefore, is an important part of the treatment of the disease. Patients should be under the supervision, at least in part, of a physician specially trained. There are a number of centers, moreover, where orthopedic treatment is available and, fortunately for Massachusetts, a center of this type has been developed at the Children's Hospital in Boston.

Early diagnosis in the preparalytic stage, the use of convalescent serum and adequate orthopedic care when the acute disease is over are the three measures best suited, at present, to combat poliomyelitis. Until we know the cause of the disease we must rely largely on the use of serum prepared for us by a previous patient, and in its use much depends on the speed with which an alert physician makes the diagnosis.—*New England J. Med.*, July 30, 1931.

*"Diseased" Buildings.*—Several articles have appeared recently in medical journals calling attention to inaccuracies often noted in scientific terminology, or nomenclature, not only in secular periodicals and newspapers but in technical bulletins as well. In the field of mental hygiene it has been necessary to explain to the uninitiated the difference between "mental defect" and "mental disease." But we, too, have been careless with our psychiatric vocabulary. Why the "Psychopathic Hospital"? There may be "psychopathic social workers," but state hospitals and mental hygiene clinics try as far as possible to employ safe and sane "psychiatric" social workers. Facetiously, and for the sake of brevity, professional workers have referred to students of mental deficiency as the "feeble-minded group."

"Insane" is a good old fashioned word, try as we may to discard it as a medical term, but why announce, as does a current bulletin, that the foundations have been completed for two "disturbed buildings" and two "epileptic buildings" for the blank "insane hospital"? Have you ever seen a "nervous hospital"? But even the purist is stumped at "mental institutions," the phrase has come into such general use. The technologists have given us the televox, the electric man and the robot, but it takes a psychiatrist to endow a hospital for the insane with mind.—*The National Committee for Mental Hygiene*, July 10, 1931.

## MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

**Senility Transplants.**—Immediately after maturation, frog's eggs pass into a resting stage, awaiting fertilization. If fertilization is too long delayed, degenerations set in and atypical embryos or monstrosities develop. These senilized monstrosities are characterized by an overabundance of melanin in the internal tissues, by low-grade cellular differentiation, and a tendency to tumor formation. The monstrosities usually die within two weeks.

To keep these "senile" tissues alive, Doctor Witschi of the Zoölogical Laboratory, University of Iowa,\* transplanted fragments into normal tadpoles. Some of these grafts took on aggressive invasive characteristics, pigmented cells spreading throughout the surrounding normal tissues.

The main bulk of one such graft was retransplanted into a second frog. Sixty days later the abdomen of this frog was found to contain a large invasive tumor mass, partially destroying the urinary bladder, with numerous secondary nodules in the liver, histologically identical with melanotic sarcomata in man.

Doctor Witschi has apparently opened up a very important new method of experimentation in experimental cytology, particularly suggestive in its bearing on the etiology of malignant disease.

W. H. MANWARING, Stanford University.

**Treatment of Epidermophytosis.**—Epidermophytosis has, during the past few months, assumed the dignity of an epidemic. While the condition is not a fatal one, in its selective involvement of the feet and toes it is nevertheless distressing and painful, and often one causing economic loss because of its impairment to locomotion.

Epidermophytosis inguinale, the causative fungus, is demonstrable in at least 50 per cent of cases, provided proper technique is used and ample time devoted to the search.

The four common varieties are: (1) the vesicular; (2) the scaling; (3) the macular; (4) the macerated. This report is presented with the sole hope of adding an efficient therapy to the present unsatisfactory mode of attack. Beckman,<sup>1</sup> under the caption of "Therapy," states: "Treatment of epidermophytosis has never been entirely satisfactory, some cases resisting any and all sorts of measures while others clear up very quickly under the simplest of treatment."

This report is based on a series of twenty-five cases of typical "athletic foot," including three of the four varieties previously mentioned, the macerated representing fifteen of the twenty-five. Only the macular type is absent.

The male is affected four to one, although wide fluctuation here is probable, depending upon the relative athletic activity of the sexes in different parts of the country. The youngest patient treated was a boy nine years of age, the oldest a woman of seventy-two. Epidermophytosis knows no class distinction. All public places—swimming pools, country clubs, athletic clubs, gymnasiums, etc.—have been found to harbor the causative fungus.

The effectiveness of the treatment of these twenty-five cases has been compared with a previous series of the same number treated prior to the use of the treatment to be detailed. In the former series there were none without one relapse and some with as many as three, the time involved being from three weeks to three months. In the present series no relapses have occurred during the six months to a year following treatment. The time necessitated for treatment has been reduced 50 to 75 per cent without any economic loss. It was difficult to persuade one patient (who resided in a distant city) to return for a fifth treatment, so great was the relief and so rapid the elimination of the infection.

The attack is simple but effective. Rigid adherence without deviation is the price of success. Scholtz<sup>2</sup> keynotes the essence of this: "One of the common causes of therapeutic failure is inadequate attention to detail." The truth of this statement cannot be overemphasized and needs frequent repetition.

The four essentials to success in treatment consist of:

1. Trimming of all nails.
2. Interdiction of water to the infected parts while under treatment.
3. Use of white cotton stockings.
4. Daily treatment with short-wave antiseptic water-cooled actinic ray.

The use of water is denied on account of irritation of the open lesions and the potentiality of its carrying the infection to other parts. Trimming the nail is absolutely necessary and essential due to the fact that beneath these appendages the trichophyton is often harbored and establishes a reinfection; likewise it is less difficult to effect

\*Witschi, E.: Experimentally Produced Neoplasma in the Frog, *Proc. Soc. Exper. Biol. and Med.*, 27:475 (March), 1930.

<sup>1</sup> Beckman: *Treatment in General Practice—Epidermophytosis*, p. 674, 1930.

<sup>2</sup> Scholtz: *Dermatologic Therapeutics—Basic Principles and Technique*, California and West. Med., 33:765, No. 5 (Nov.), 1930.



antiseptic action without interference from a shelving nail. Before application of the ultraviolet the entire foot, sole, and dorsal surfaces in turn are cleansed with ether swabs, and each of the toes is spread apart by the patient, that the spaces between may be swabbed with ether. Then with the particular water-cooled machine, whose action is known to the operator, one-minute radiation at four to six inches distance is applied to the dorsum, the sole surfaces, and the spaces between the toes. There is some overlapping here of radiation, but so far as our experience is observed it is beneficial rather than detrimental. A new or clean white cotton sock is put on and is *not* removed until treatment on the following day. This has its merits in that the feet of the patient do not spread the infection; bed clothing is not contaminated, and the fungus does not grow so rapidly or thrive so readily in a cool cotton environment. Women enter a vigorous protest against this procedure unless the regular hose over the cotton stocking cut hose length at the ankle is allowed.

The routine is repeated until all trace of the infection has disappeared.

W. SCOTT KEYTING, Salt Lake City, Utah.

**Measles Prophylaxis.**—While measles in California is not so severe or so often followed by complications and sequelae as in the East, still it does enough damage to warrant avoidance. The younger the child, the more urgent is prevention, because in general, severity varies inversely with age among children.

Since we have at hand, in the blood of persons who have had the disease, a simple and effective prophylactic against measles, it seems that preventive efforts should be more generally made.

Omitting references, it may be stated that practically every adult who has had measles as a child carries a permanent supply of antibodies sufficient to protect himself actively and completely against subsequent attacks, and sufficient to protect others passively to some extent. This extent varies with the antibody-producing-and-maintaining power of the individual, and is relative to the blood volume used.

The sooner after exposure the serum is transferred to the patient and the more that is given the greater the chances of protection.

Practically, to avoid difficulties, serum is not separated, but whole citrated blood is used, and is given in one or both buttocks, as soon after exposure as possible. Dosage is from 20 to 35 cubic centimeters, according to the size of the child.

These amounts, if given within four days of exposure, will usually protect completely. Such protection lasts from three weeks to three months—usually sufficient to postpone susceptibility at least one season. If given after the fourth day, protective power diminishes rapidly, but if used from four to seven days before the rash comes out, protection is usually sufficient

to modify the disease to a very light case, with perhaps only twenty-four to forty-eight hours of moderate fever, and an evanescent rash. Under such conditions, as a result of the mitigated measles, a permanent active immunity is developed. Consequently, it is always hoped that circumstances will be such that this result can be achieved.

Blood from relatives who have had measles any time in the past is used and does not need to be typed. It must be from a syphilis-free person of course. In case there is no Wassermann information on the parents' blood, the mother can usually be considered safe on her own denial, if the situation is explained to her.

The amount of blood to be taken is divided by ten, and this quantity of sterile two per cent citrate solution is drawn into the syringe. The blood is then drawn, mixing itself with the solution as it comes. With the same syringe and needle, injection is made deep in the gluteal region. There is a feeling of fullness, but very little pain. The child gets up and walks, and in a few hours all is absorbed. Reaction practically never follows—no possible harm is done, and the chance for good is great.

The public is learning about this, and is already asking for it.

If enough serum could be obtained, and given intravenously (typing required) the disease once contracted could be benefited. This, however, is seldom necessary, and the complication of the procedure makes it much less practicable than the whole blood prophylaxis after known exposure.

EDWIN F. PATTON, Los Angeles.

**An Early Symptom of Tuberculous Infection.**—It is important to recognize any sign of early tuberculosis, as it is upon the early recognition of the disease that the prophylaxis is based, as well as the prospects for arrest of the infection. It is especially essential in childhood to diagnose the disease as soon as possible so that the child's contact, if not already known, may be searched for, and removed from the environment. An early sign, often not considered by physicians as related to tuberculosis, is the appearance of erythema nodosum. The clinical evidence, in cases of young children, is rather overwhelmingly in favor of this being related to an early tuberculous infection. The condition in young children almost always occurs only in the presence of a positive tuberculin test, and in many proved cases toward the end of the incubation period of tuberculosis, and during the initial fever of this infection. The younger the individual the more certain is the association. In the Scandinavian countries, where erythema nodosum is seen very frequently in children, it is considered as pathognomonic of a recent infection with the tubercle bacillus. The possibility of the association should be borne in mind whenever one sees erythema nodosum, and in infants and young children should be considered as evidence of tuberculosis, until definitely proved otherwise.

LLOYD B. DICKEY, San Francisco.

# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION\*

JUNIUS B. HARRIS.....President  
JOSEPH M. KING.....President-Elect  
EMMA W. POPE.....Secretary

### COMPONENT COUNTY SOCIETIES CONTRA COSTA COUNTY

The Contra Costa County Medical Society resumed its regular meetings at the Hotel Carquinez, Richmond, on September 15.

After reading and approval of the minutes of the meeting held in June, the applications of Drs. M. L. Stauffer of Pittsburg and F. P. Nevis of Antioch for membership into the society were unanimously approved. Dr. Sol Hyman of Los Altos appealed to the society for financial support for the Lane Medical Library. The great service rendered by this institution in the past was pointed out by the speaker. He suggested that a committee be appointed to canvass the individual members for supporting memberships to the library. Drs. J. W. Bumgarner and I. O. Church were assigned to this work. It was moved and seconded that the society also contribute the sum of \$10 for a membership.

The county health officer, Dr. Church, requested the opinion of the society concerning certain printed instructions which county nurses were distributing to the mothers of school children suffering from impetigo, pediculosis, ringworm, and the so-called itch. This practice has been in effect for a number of years and presumably resulted from the neglect or parents to seek medical attention for this type of cases, particularly in the outlying rural districts. Much discussion on the question brought out the fact that the principle of allowing school nurses to diagnose and prescribe for such minor ailments should be condemned, but it was recognized that in certain sections of the county insistence on treatment by private practitioners would be impractical. It was finally voted to indorse whatever policy the county health officer saw fit to adopt in the regulation of these practices.

Further discussion was held concerning the recent efforts of the society to obtain hospital facilities for county patients in Richmond. It was the consensus of opinion that provision should be made by the county to defray the cost of hospital treatment in emergency cases. It was finally voted to invite the Board of Supervisors to meet the society at its next meeting. A representative of a Richmond newspaper appeared before the society to request its indorsement for a series of advertisements on a matter pertaining to the relationship between the medical profession and the public. This proposition was referred to the chairman of the Medical Economics Committee, Dr. J. M. McCullough.

The scientific paper of the evening was ably presented by Dr. Leroy Brooks of San Francisco. In discussing the special aspects of surgery in children the speaker emphasized the psychological requirements in approaching these little patients, the choice of anesthetic, preparation, and after-care. Doctor Brooks briefly discussed the most common surgical problems found in childhood, and outlined their management. He also demonstrated the Brooks trans-

fusion tube and technique. His paper proved very interesting and was freely discussed by the large audience.

Refreshments were enjoyed after the meeting.

L. H. FRASER, *Secretary*.

### SACRAMENTO COUNTY

A regular meeting of the Sacramento Society for Medical Improvement was held at the Elks' Club on Tuesday evening, June 16, at 8:30 o'clock.

Forty-eight members were present.

The meeting was called to order by the president, Philip G. Young, and the minutes of the last meeting read and approved.

Dr. Frank Reardan presented a case of rat-bite fever. The diagnosis in this case was corroborated by finding the spirochete in the blood smear. Dr. Nathan G. Hale presented a case in which a permanent nephrostomy was performed through necessity. The stone was lodged in the good ureter and could not be removed in any other way.

The papers for the evening were a symposium on blood chemistry. The first paper was read by Dr. Frederick N. Scatena on the nitrogenous waste products of the blood. The different nitrogenous retention products were described and their meaning as an index of prognosis was told.

Dr. Frank Reardan continued the symposium on blood chemistry, limiting his discussion to the blood sugar. He described the sugar-tolerance test and pointed out that the prolongation of the curve was a more important diagnostic sign in early diabetes than the height of the curve. The different clinical conditions in which the blood sugar is higher than normal were discussed.

The closing paper in this symposium was read by Dr. Paul Christman. Doctor Christman's paper dealt with blood cholesterol, calcium, and chlorids. Tests for these elements in the blood were described, and the significances of their presence discussed from the standpoint of the pathologist.

The papers were discussed by Doctors Kanner, Beach, and Van den Berg. Doctor Van den Berg described a case of hyperinsulinism in which the sugar-tolerance test was of diagnostic importance.

Applications from the following doctors were read for the second time: James F. McAnally, Thomas W. Kelsey, and Alfred S. Mattson. All were elected to membership in the Sacramento Society for Medical Improvement.

J. B. Harris read an excellent obituary to the memory of our dearly beloved brother, J. R. Snyder, M. D., who departed to his eternal home on April 20. It was moved, seconded, and duly passed that this obituary be spread upon the minutes of the Sacramento Society for Medical Improvement and that a copy be sent to the family of our deceased brother.

FRANK WARNE LEE, *Secretary*.

### SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held in the Bissell auditorium of the Cottage Hospital on Monday, September 14, at 8 p. m.

In the absence of President Ullmann the meeting was called to order by Vice-President Koefod.

The transfer card of Dr. John H. Childrey from Olmsted County, Minnesota, was read and upon motion he was unanimously elected into membership in the society.

\* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.



The principal speaker of the evening was Dr. Edgar Gilcreest of San Francisco, who was introduced to the society by Dr. Rexwald Brown. Doctor Gilcreest then gave a most interesting and instructive talk on "Partial and Complete Rupture of Muscles, More Especially of the Biceps Flexor Cubiti," illustrated with lantern slides.

The paper was discussed by Doctors Atsatt, Robinson, Brown, and Pierce.

The next paper was "Arguments Against State Medicine" by Dr. P. C. Means. Owing to the lateness of the hour this paper was discussed only by Dr. Rexwald Brown. **WILLIAM H. EATON, Secretary.**

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#### SANTA CRUZ COUNTY

After the usual summer recess the first meeting of the fall season was held at the Hotel Rio del Mar, Aptos. The meeting was preceded by a very enjoyable dinner served in the very attractive dining room of this unique hotel.

Dr. Langley Porter, dean of the University of California Medical School, was the guest speaker of the evening and presented a paper on "Abdominal Conditions in Childhood." A series of well-selected lantern slides emphasized the important features of the data presented. The subject, obviously so important to those of us in general practice, was discussed very completely by Doctor Porter and we all felt better fortified for the task of more accurate diagnoses when children with acute abdominal conditions are met. Following the paper an active discussion was participated in by Drs. A. L. and P. T. Phillips, E. Eiskamp, and Ethel Watters.

The application of Dr. John Dunphy for membership in the society was read and referred to the board of censors. Doctor Dunphy, a recent McGill graduate, is now located in Santa Cruz, and associated with Drs. P. T. and A. L. Phillips and S. B. Randall.

The matter of a selected type of medical advertising in one of the local papers was described to the society by a representative of the paper interested. The endorsement of the society was desired, but feeling that this was a matter for more thorough investigation, it was decided to refer the subject to a committee and to our state councilor, Dr. A. L. Phillips, for further investigation.

The meeting was very well attended and augurs well for future meetings during the winter season. Members present were: Doctors Eiskamp, Marshall, Koda, Koepke and Tipton from Watsonville; Doctors Congdon, Hatch, Gaynor, Harrington, Ethel Watters, Shenk, Fehlman, A. L. Phillips, P. T. Phillips, Piper, Sullivan, Nittler, and Randall from Santa Cruz; Dr. Farmer from Felton; Dr. W. A. Phillips from Ben Lomond. Visitors included: Doctor Shay of Watsonville; Doctors J. Dunphy and M. McPherson from Santa Cruz; Dr. U. G. Windell of Chicago, Illinois; Dr. Van Orden of Brookdale, and Mr. Pat Freeman of Santa Cruz.

**SAMUEL B. RANDALL, Secretary.**

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#### VENTURA COUNTY

The regular monthly meeting of the Ventura County Medical Society was held on August 10 at the Ventura County Clinic building. The meeting was called to order by Vice-President Smoldt.

Members present were: Doctors R. M. Jones, D. G. Clark, Hendricks, Homer, Rhymes, Welch, W. S. Clark, Shore, Achenbach, Illick, Mosher, King, and Armitstead.

Doctors Clark, Geyman, and Ullmann of Santa Barbara and Doctor Foskett of Ventura were visitors.

A motion was made authorizing the secretary to write a letter to Doctor King stating that the Ventura County Medical Society was not, as a body, endorsing any member for the position of county health officer.

Following the business meeting an illustrated lecture was given by Doctor Glyman on the x-ray demonstration of duodenal ulcer, which was well received.

**R. B. ARMITSTEAD, Secretary.**

## CHANGES IN MEMBERSHIP

### New Members

*Los Angeles County*—Orrin Lloyd-Jones, E. E. Milligan, Harvey J. Skarshaug.

*Orange County*—Russell I. Johnson.

*San Bernardino County*—Arthur E. Varden.

*San Diego County*—Charles E. Sisson.

*San Francisco County*—Alice C. Bepler, William E. O'Grady, Saxton Temple Pope, II.

### Transfers

Rexford W. McBride, from Yolo-Colusa to San Mateo County.

### Deaths

**Calder, James Squair.** Died at Los Angeles, August 30, 1931, age 90 years. Graduate of Harvard University Medical School, Boston, 1866. Licensed in California, 1895. Doctor Calder was an honorary member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

**Coburn, Elwyn Stevens.** Died at National City, August 26, 1931, age 67 years. Graduate of Medico-Chirurgical College of Philadelphia, Pennsylvania, 1895. Licensed in California, 1912. Doctor Coburn was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Hubbell, George Rucian.** Died at San Francisco, September 15, 1931, age 64 years. Graduate of Cooper Medical College, San Francisco, 1890. Licensed in California, 1890. Doctor Hubbell was a member of the Sonoma County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Slaughter, Theron Hart.** Died at Long Beach, September 9, 1931, age 43 years. Graduate of Washington University School of Medicine, St. Louis, 1912. Licensed in California, 1923. Doctor Slaughter was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

## OBITUARIES

### John Brown Manning 1879-1931

Dr. John Brown Manning was born in Boston, Massachusetts, June 3, 1879. He received his preparatory education in Adams Academy in Quincy, Massachusetts, and was graduated from Harvard in 1903 and from Harvard Medical School in 1906. His internship was served in the Worcester City Hospital, Worcester, Massachusetts, and the Children's Hospital in Boston, after which, in 1911, he went abroad to study, visiting clinics in Berlin, Munich, and Vienna. He was the author of numerous professional articles on diseases in children and public health as it relates to children.

Doctor Manning was a member of numerous national and international medical societies and was enrolled in the California State Medical Society and the Santa Barbara County Medical Society. His activities as associate of Dr. Edward J. Lamb at the Children's Clinic, and his interest in the County Health Commission occupied much of his time.

Doctor Manning was with the Red Cross for nearly three years, going overseas before this country entered the World War, remaining a year, and returned to Europe again on the entry of the United States into the war. He devoted his overseas activities to looking after the feeding of children in Russia, Siberia and in France.

He was a great home man, and possessed of a personality which endeared him to all with whom he came in contact. His club memberships included the





JOHN BROWN MANNING

University and LaCumbre Country Clubs, and a membership which he prized highly, his charter enrollment in the American Academy of Pediatricians.

Doctor Manning, after moving to Santa Barbara from Seattle in 1924, had been active in public health work as well as in his private practice. He had given untiringly of his time to the Visiting Nurse Association, the well-baby clinic, and Cottage, St. Francis and County hospitals. He was a past president of the St. Francis Hospital staff and of St. Vincent's Orphanage, and was on the advisory board of the County Welfare Commission.

He is survived by his widow, Mrs. Mary Te Roller Manning, and his two sons.



**John Jay Still**  
1854-1931

Dr. John Jay Still died at his home in Los Angeles on August 22, 1931. In 1928 Doctor Still was the victim of a cerebral hemorrhage from which he had quite recovered, but had not returned to practice. His death was sudden.

Doctor Still was born at Macon City, Missouri, in 1854. He had a course at Dartmouth College. He studied medicine at Keokuk, Iowa, but before graduating took the state board examination and began practicing in 1878 at the age of twenty-four. He graduated from the Missouri Medical College in 1882 and from Bellevue Medical College in 1885.

In 1887 Doctor Still came to Los Angeles. He was one of the organizers of the Pacific Hospital and later of the Angelus Hospital. He was associate professor of surgery in the College of Physicians and Surgeons from 1904 until that school closed. He was a member of the staff of the Los Angeles County Hospital for many years.

Doctor Still was a good student, a wide reader of general as well as medical literature, and was most highly esteemed by his patients and his colleagues, and especially by those who knew him intimately. He is survived by his widow and two daughters, Miss Annie Still and Mrs. Gladys M. Ward. W. D.

### THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION\*

#### Meeting of State Board of the Woman's Auxiliary.

The state board of the Woman's Auxiliary to the California Medical Association held a very interesting meeting in Oakland on August 27 at the Women's Athletic Club. The following members were present: President Mrs. William H. Sargent, Mrs. Charles Stevens of Santa Barbara, Mrs. S. N. Weil, Rodeo; Mrs. Maynard Harding, San Diego; Mrs. C. J. Teass and Mrs. C. P. Proudfoot, San Luis Obispo; Mrs. A. M. Henderson and Mrs. Frederick Scatena, Sacramento; Mrs. Philip Doane, Pasadena; Mrs. John W. Barrow, Los Angeles; Mrs. W. L. Blodgett, Calistoga; Mrs. A. A. Alexander and Mrs. Louis H. Dyke of the East Bay.

The important conclusion of the meeting was the necessity of increasing the membership in the county auxiliaries.

Realizing that scientific medical information to the public is necessary, a campaign of education should be carried on constantly.

Our state president, Mrs. William H. Sargent, is most enthusiastic about the work that we can accomplish in our state. She was one of the speakers at the Alameda County Auxiliary on September 11. The following excerpts from her speech may prove helpful to other auxiliaries.

"The purpose of the Woman's Auxiliary is to act as a medium between the profession and the laity, and to carry out such requests as are imposed upon us by the American Medical Association, the state medical and the county medical societies.

"Secure a list of the membership of your county medical society and do not rest until you have brought into the auxiliary every eligible woman in the county. In union there is strength, and the strength of every organization is measured by its numerical force and the interest and enthusiasm of its workers. This is particularly true when an organization has occasion to act unitedly.

"Read the JOURNAL. Make it a part of your monthly routine to read the CALIFORNIA AND WESTERN MEDICINE. There is a section in that journal set aside specifically for the Woman's Auxiliary in which you will find reported the proceedings of your own and other county auxiliaries of the state. These matters are of interest to all members, and I would urge you to briefly report your activities each month to the state chairman of publicity and publications, Mrs. Louis H. Dyke of Alameda County.

"The state board recommends that each county auxiliary have a speaker's bureau, composed of reputable physicians who will be on call to talk before women's clubs, Parent-Teacher associations, men's organizations, and over the radio on subjects suggested by the advisory board of the county society. A chairman should be appointed by the auxiliary to obtain the names of the various speakers and their subjects. Doctor Dickey has very generously offered his assistance along this line.

"The type of woman who is taking up the work of the auxiliary is the type that stands shoulder to shoulder with her husband—not sorry that she married a doctor, but proud to be connected with the medical profession.

"In conclusion, I have endeavored to show you that our association with the Auxiliary gives us a better understanding of the relationship of the profession to

\*As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of their officers should be forwarded to the state recording secretary, Mrs. Maynard Harding, 4529 Rhode Island Street, San Diego. Brief reports of county auxiliary meetings will be welcomed by Mrs. Harding and must be sent to her before publication takes place in this column. For lists of state and county officers see advertising page 6. The Council of the California Medical Association has instructed the editors to allocate one page in every issue for Woman's Auxiliary notes.



the public, and a better understanding of the needs of the community, especially as related to health matters. It also enables us to take a more intelligent and effective part in these activities. And, incidentally, it leads to a better acquaintance among the families of physicians. This is much to be desired."

Dr. Daniel Crosby of Oakland also gave a most helpful talk at this meeting on "The Medical Profession and the Forces That Are Endeavoring to Undermine It," urging us to keep abreast of the times, and to help the laity realize what is really being accomplished for the help of humanity through the science of medicine.

### EXTENSION LECTURE PROGRAM\*

*Foreword.*—Herewith is printed a roster of the members of the California Medical Association who will be glad to give addresses before component county medical societies. The titles of their papers are also given. The addresses of these colleagues may be found in the last California Medical Association and State Board directories. Program committees may feel free to correspond with them or with the Association secretary, Doctor Pope, regarding possible lectures.

**Available Educational Film.**—The department of visual instruction of the University of California at Berkeley have just released a motion picture produced by the Castle Films of New York City entitled "The Relation of Nutrition to Dental Health." Arrangements for the showing of this film may be made with Mr. Robert S. Johnson, University of California, Berkeley.

#### 1. INDEX TO SUBJECTS

##### Dermatology and Syphilology

Alderson, Harry E. Soiland, Albert  
Lunsford, C. J. Templeton, H. J.  
Way, Stuart C.

##### Eye, Ear, Nose, and Throat

Barkan, Hans

##### General Medicine

Hurwitz, Samuel H. Pinness, George  
Kruse, Fred H. Pulford, D. Schuyler  
Lisser, Hans Rowe, Albert H.  
Miller, Hyman Shepardson, H. Clare  
Read, J. Marion

##### (a) Cardiology

Kilgore, Eugene S. Langley, Robert W.  
Sampson, John J.

##### (b) History of Medicine

Codellas, Pan S. Leake, Chauncey

##### (c) Tropical Medicine

Reed, Alfred C.

##### (d) Tuberculosis

Pierson, Philip H. Trumble, Harold G.  
Voorsanger, William C.

##### General Surgery

Brooks, LeRoy Mentzer, Stanley H.  
Gehrels, Ernst Soiland, Albert  
Gilcreest, Edgar G. Yoell, Rodney A.  
Soiland, Albert

##### (a) Brain and Spinal Cord Surgery

Towne, E. B.

##### (b) Neurological Surgery

Glaser, Mark Albert

##### (c) Plastic Surgery

Bames, H. O. Updegraff, H. L.

##### (d) Thoracic Surgery

Brown, A. Lincoln

##### Orthopedics

Gottlieb, A.

##### Pathology

Kellogg, W. H.

##### Pediatrics

Sweet, Clifford

##### Pharmacology and Chemistry

Leake, Chauncey

##### Psychiatry

Smith, Sydney K.

##### Radiology

Lawson, John D. Pendell, M. L.  
Soiland, Albert

##### Urology

Ferrier, Paul A. Redewill, Francis S.  
Wesson, Miley B.

#### 2. INDEX OF SPEAKERS

**Harry E. Alderson, M. D., and Stuart C. Way, M. D.,** 320 Medico-Dental Building, 490 Post Street, San Francisco.

1. A Skin and Syphilis Clinic of (not more than six) locally selected cases will be conducted.
2. An Illustrated Talk on Dermatoses of Interest to the General Practitioner.
3. Diagnosis, Prognosis, and Treatment of Skin Neoplasms.

**H. O. Bames, M. D.,** 512 Pacific National Building, Los Angeles.

1. Plastic Surgery of the Face. (Lantern slides.)
2. Plastic Surgery of the Enlarged and Pendulous Breasts. (Lantern slides.)

**Hans Barkan, M. D.,** 921 Medico-Dental Building, 490 Post Street, San Francisco.

1. Cataract Operations and Their Complications.
2. Strabismus Operations—When and How to Operate.
3. The History of the Spectacle. (Lantern slides.)

**LeRoy Brooks, M. D.,** 731 Medico-Dental Building, 490 Post Street, San Francisco.

1. Blood Transfusion.
2. Spinal Anesthesia with Spinocain for Operations Below the Diaphragm.
3. Surgery of Infancy and Childhood.

**A. Lincoln Brown, M. D.,** Medico-Dental Building, 490 Post Street, San Francisco.

1. The Surgery of Pulmonary Tuberculosis. (Lantern slides.)
2. Postoperative Pulmonary Complications—Atelectasis. (Lantern slides.)
3. Operation for Pulmonary Embolectomy. (Motion pictures.)

**Pan S. Codellas, M. D.,** Schroth Building, 240 Stockton Street, San Francisco.

1. What Greece Owes in Medicine to Assyro-Babylonia, Egypt, Judea, and India—A Comparison of Origin and Progress of Early Medical Thought.
2. Archaeology as a Hand-Maid of History of Medicine—A Review of Acquired Knowledge on Ancient Medicine from Archaeological Findings.
3. The Forerunners of Hippocrates—The Medicine of the Period from Homeric Times to the Golden Age of Pericles.

**Paul A. Ferrier, M. D.,** Professional Building, 65 North Madison Avenue, Pasadena.

1. Tumors of the Urinary Tract.
2. Tuberculosis of the Urinary Tract.
3. Points of Contact Between Urology and General Practice.

**Ernst Gehrels, M. D.,** 734 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Surgical Management of Gastric and Duodenal Ulcer.
2. The Choice of Procedure in Resection of the Colon.
3. Cancer of the Rectum.

**Edgar L. Gilcreest, M. D.,** 315 Fitzhugh Building, 384 Post Street, San Francisco.

1. Unrecognized Shoulder Affections and Injuries.
2. Compound Fractures of the Elbow Joint.
3. Biographical Studies of Osler, Lister, and Hunter.

\* Additional names of speakers and topics received too late for inclusion in this issue of California and Western Medicine will be added to the published Extension Lecture Program reprints.

**Mark Albert Glaser, M.D.**, 1118 Roosevelt Building, 727 West Seventh Street, Los Angeles.

1. The After-Effects of Head Injuries with a Consideration of the Treatment in Acute Head Injuries.
2. Encephalograms and Ventriculograms.
3. Recent Advances in the Diagnosis, Treatment, and Surgery of Neuralgias Involving the Face.

**A. Gottlieb, M.D.**, 1240 Roosevelt Building, 727 West Seventh Street, Los Angeles.

1. Obscure Foot Lesions. (Lantern slides.)
2. Physiotherapy in Poliomyelitis Paralysis.

**Samuel H. Hurwitz, M.D.**, 1214 Medico-Dental Building, 490 Post Street, San Francisco.

1. Treatment of Asthma.
2. Sinus Disease in Asthma and Hay Fever.
3. Allergic Diseases.

**W. H. Kellogg, M.D.**, State Hygienic Laboratory, Berkeley.

1. Concerning Anaphylaxis.
2. Diphtheria Is Preventable but Not Prevented. Why?
3. The "Plague" Diseases in Modern Times.

**Eugene S. Kilgore, M.D.**, 724 Medico-Dental Building, 490 Post Street, San Francisco.

1. Pitfalls in Heart Diagnosis.
2. What the General Practitioner Should Know About Technical Methods of Heart Diagnosis.

**Fred H. Kruse, M.D.**, 916 Fitzhugh Building, 384 Post Street, San Francisco.

1. Peptic Ulcer—Etiology, Clinical Aspects, and Treatment.
2. Functional Colonic Disorders—Irritable and Redundant Colons.
3. Jaundice—Clinical Differentiations—Study of Liver Functions and Relationship to Gall-Bladder Disease.

**Robert W. Langley, M.D.**, Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles.

1. Coronary Artery Disease. (Lantern slides.)
2. Cardiac Pain.
3. X-Ray Study of the Heart.

**John D. Lawson, M.D.**, Woodland Clinic, Woodland.

1. The Value of Radiography of the Gastro-Intestinal Tract.
2. The Use of Radiotherapy in Treatment of Acute Pyogenic Infections.
3. High Milliamperage Technique.

**Chauncey D. Leake, Ph.D.**, University of California Medical School, Parnassus and Third Avenues, San Francisco.

1. Recent Advances in Pharmacology.
2. Chemotherapy of Amebiasis.
3. Historical Development of Surgical Anesthesia.
4. William Harvey.

**Hans Lissner, M.D.**, 240 Fitzhugh Building, 384 Post Street, San Francisco.

1. The Importance of Recognizing Various Types of Myxedema. (Lantern slides.)
2. Calcium Metabolism and Diseases of the Parathyroid Glandules.
3. Roentgenology as an Aid to Endocrine Diagnosis.

**C. J. Lunsford, M.D.** (See topics under H. J. Templeton, M.D.)

**Stanley H. Mentzer, M.D.**, 1009 450 Sutter Street, San Francisco.

1. The Silent, Though Acute Gall-Bladder. (Lantern slides.)
2. The Treatment of Acute Cholecystitis. (Lantern slides.)
3. Gallstones—Their Symptoms and Treatment. (Lantern slides.)

**Hyman Miller, M.D.** (See topics under George Piness, M.D.)

**Philip H. Pierson, M.D.**, 1228 Medico-Dental Building, 490 Post Street, San Francisco.

1. Early Diagnosis of Tuberculosis and Appropriate Treatment.
2. Nontuberculous Pulmonary Suppuration.
3. Pathology of Pulmonary Roentgen Shadows.

**M. L. Pendell, M.D.**, Los Angeles County Health Department, Los Angeles.

1. What Los Angeles County's Health Department Is Doing About Tuberculosis.
2. Abstruse Lesions of Pulmonary Tuberculosis.
3. Childhood Tuberculosis.

**George Piness, M.D.**, and **Hyman Miller, M.D.**, 608 Medical Office Building, 1136 West Sixth Street, Los Angeles.

1. Hay Fever—Its Diagnosis and Treatment.
2. Chronic Bronchial Asthma—Its Problems.
3. Diagnosis and Management of the Allergic Child.

**D. Schuyler Pulford, M.D.**, Woodland Clinic, Woodland.

1. Epilepsy.
2. Goiter.
3. Tissue, Pathological.

**Francis H. Redewill, M.D.**, 522 Flood Building, 870 Market Street, San Francisco.

1. Why Men Suicide.
2. Modern Treatment of Wassermann-Fast Cases.
3. What Does the American Medical Association Recommend in Way of Electrotherapeutic Treatment in Urology.

**J. Marion Read, M.D.**, 1530 Medico-Dental Building, 490 Post Street, San Francisco.

1. Some Physiologic Aspects of Blood Pressure.
2. The Nature of Grave's Disease.
3. Our present Knowledge of Thyroid Disease.

**Alfred C. Reed, M.D.**, 350 Post Street, San Francisco.

1. Clinical Amebiasis and Newer Methods of Treatment.
2. Relapsing Fever in California. (Illustrated.)
3. Oriental Health Conditions. (Illustrated.)

**Albert H. Rowe, M.D.**, 242 Moss Avenue, Oakland.

1. Food Allergy as a Cause of Human Symptomatology.
2. Allergic Migraine and Neuralgia.
3. Gastro-Intestinal Allergy.

**John J. Sampson, M.D.**, 1530 Medico-Dental Building, 490 Post Street, San Francisco.

1. Heart Complications of Surgical Procedures.
2. Diagnosis and Treatment of Cardiac Arrhythmias.
3. Clinical and Experimental Action of Inorganic Salts on the Heart.

**H. Clare Shepardson, M.D.**, 204 Fitzhugh Building, 384 Post Street, San Francisco.

1. Diabetic Coma—Causes, Signs, and Symptoms; Treatment.
2. Surgery on the Patient with Diabetes Mellitus.
3. Hypoglycemia. (Thirty minutes.)

**Sydney Kinnear Smith, M.D.**, 230 Grand Avenue, Oakland.

1. Psychiatry—What It Is.
2. The General Practitioner and Psychiatry.
3. Modern Trends in Mental Medicine.

**Albert Soiland, M.D.**, 1407 South Hope Street, Los Angeles.

1. Observations of Uterine Cancer Treated by Radiation and Results During the Past Fifteen Years.
2. Radium and Roentgen Therapy of Uterine Fibromyomata.
3. Electrocoagulation and Radiation in the Treatment of Skin Malignancies.

**Clifford Sweet, M.D.**, 242 Moss Avenue, Oakland.

1. The Diagnosis and Treatment of Acute Infections in Children.
2. The Diagnosis and Treatment of Pyloric Stenosis and Pylorospasm in Infants.
3. The Diagnosis and Treatment of Acute Otitis Media in Infants and Children.

**H. J. Templeton, M.D.**, and **C. J. Lunsford, M.D.**, 3115 Western Street, Oakland.

1. Malignant and Premalignant Diseases of the Skin. Treatment by Endothermy. Demonstration of instruments used. (Lantern slides.)



2. Modern Advances in the Diagnosis and Treatment of Syphilis.
3. Ringworm of the Feet—Practical and Research Considerations.

**E. B. Towne, M. D.**, 612 Union Square Building, 350 Post Street, San Francisco.

1. Roentgen Ray in Diagnosis and Localization of Tumors of the Brain. (Lantern slides.)
2. Treatment of Injuries of the Brain and Spinal Cord. (Lantern slides.)
3. Surgery of the Peripheral and Cranial Nerves. (Lantern slides.)

**Harold Guyon Trimble, M. D.**, 707 Latham Square Building, 508 Sixteenth Street, Oakland.

1. Diagnostic Chest Clinics.
2. Surgical Conference on the Chest (with Surgical Colleague).
3. What Is a Preventorium and What Can It Do for Us.

**Howard L. Updegraff, M. D.**, 6777 Hollywood Boulevard, Hollywood.

1. Methods of Reconstructive Surgery.
2. Reconstruction of the Burned Face.
3. Autogenic Transplants.

**William C. Voorsanger, M. D.**, 1001 Medico-Dental Building, 490 Post Street, San Francisco.

1. Diagnosis of Early Tuberculosis.
2. Pulmonary Conditions Wrongly Diagnosed as Tuberculosis.
3. Vaccine Therapy in Infectious Bronchitis and Asthma.

**Stuart C. Way, M. D.** (See topics under Harry E. Alderson, M. D.)

**Miley B. Wesson, M. D.**, 939 Medico-Dental Building, 490 Post Street, San Francisco.

1. Intravenous Urography—A New Diagnostic Procedure of Value to the General Practitioner. (Lantern slides.)
2. Diseases of the Prostate and Their Treatment, Medical and Surgical. (Lantern slides.)
3. Diseases of the Bladder—Symptoms and Treatment. (Lantern slides.)

**Rodney A. Yoell, M. D.**, 1444 Medico-Dental Building, 490 Post Street, San Francisco.

1. Surgical Aspects of Anatomy and Physiology of Gall-Bladder.
2. Acute Gangrenous Cholecystitis—Diagnosis and Treatment.
3. Bile Salt Jaundice.

## UTAH STATE MEDICAL ASSOCIATION

**WILLIAM L. RICH**, Salt Lake City.....President  
**R. A. PEARCE**, Brigham City.....President-Elect  
**M. M. CRITCHLOW**, Salt Lake City.....Secretary  
**J. U. GIESY**, 701 Medical Arts Building,  
 Salt Lake City.....Associate Editor for Utah

### OFFICIAL NOTICE

The thirty-seventh annual meeting of the Utah State Medical Association and the seventh Post-graduate Course of Instruction opened at the State University and the Salt Lake County General Hospital, respectively, on Wednesday, September 9.

The association was fortunate in having a splendid list of visiting speakers, consisting of men of a national reputation, drawn from coast to coast. Such men as Harlow Brooks, A. J. Carlson, Glen E. Cheley, John B. Doyle, Harrington B. Graham, Frederick A. Kiehle, Herman I. Laff, Chauncey D. Leake, Walter E. Leonard, Robert Levy, William C. McCarty, Howard Morrow, Roderic P. O'Connor, N. Vern Peterson, W. E. Stallings, Arthur Steindler, and Waltman Walters appeared.

A public meeting was held the night of Wednesday, September 9, at which Governor Dern delivered an

address of welcome and Doctors Carlson and McCarty spoke on timely subjects close to the public heart.

Thursday the annual banquet was held at the Hotel Utah for members and guests, and proved an enjoyable affair.

The meeting closed Friday, following election and installation of officers for the ensuing year. A full résumé of proceedings will be published in a succeeding issue.

## COMPONENT COUNTY SOCIETIES

### SALT LAKE COUNTY

A special meeting of the Salt Lake County Medical Society was held at the Newhouse Hotel the evening of August 30.

The chief business was the formation of a Special Charity Committee, to consist of seven members serving varying terms. President McHugh was empowered to appoint such a committee, the function of which will be to act in conjunction with other charitable institutions with a view of avoiding a reduplication of relief measures as applying to the needy and deserving members of Salt Lake County. It will be within the province of this committee to investigate and recommend relief measures aside from those operating under the regular county agencies, and to devise ways and means of raising funds to be used in such relief work as they may deem essential. Members of the society will be appealed to for their co-operation in this work. Plans of operation and the personnel of the committee are to be announced later.

Resolutions drafted by the Necrology Committee, covering the death of Dr. C. M. Benedict, were adopted and a copy of the resolution was ordered sent to the family of the deceased.

The application of Dr. T. Courtney Weggeland of Garfield was acted upon favorably, and the application of Dr. Alvah Thomas for membership was referred for investigation.

B. E. BONAR, *Secretary*.

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### WEBER COUNTY

A special meeting of the Weber County Medical Society was held on September 4, at the Hermitage.

Doctors Thair C. Rich and Howard K. Belnap, both of Ogden, and Harlan T. High of Devils Slide were accepted as members of the Weber County Medical Society.

Dr. William C. McCarty, Rochester, Minnesota, gave an interesting talk on mouth pathology.

CONRAD H. JENSEN, *Secretary*.

## OBITUARY

**Chauncey M. Benedict**  
 1875-1931

Dr. Chauncey M. Benedict, fifty-five, practicing physician in Salt Lake for the last thirty years, died Saturday, August 29, at his home, 126 First Avenue. He had been ill for two weeks. Death was attributed to cerebral hemorrhage.

Doctor Benedict was a past president of the Salt Lake County Medical Society, a captain in the medical corps during the World War, and at the time of his death he held a commission as a lieutenant colonel in the Medical Reserve Corps and was vice-president of Utah Department Reserve Officers Association of the United States.

He was born in Salt Lake on December 17, 1875, the son of Joseph M. Benedict, one of the pioneer physicians of the West, and Sarah P. Benedict. His preparatory education was obtained in Salt Lake schools and he received his medical degree from Cornell University. After graduation he served an internship in Bellevue Hospital, New York, and then began practicing in Salt Lake. He was a member of the staff of St. Mark's Hospital.

Doctor Benedict is survived by his widow, Mrs. Geneve Benedict; a son, Joseph E. Benedict; and a nephew, Charles Benedict Cowan, all of Salt Lake.

## MISCELLANY

Under this department are ordinarily grouped: News; Medical Economics; Correspondence; Twenty-five Years Ago column; Department of Public Health; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the twentieth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

### NEWS

**Coming Meetings.**—American College of Surgeons, New York and Brooklyn, October 12-16. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Congress of Physical Therapy, Omaha, October 5-8. Dr. F. L. Wahrer, 22 South Center Street, Marshalltown, Iowa, Secretary.

Associated Anesthetists of the United States and Canada, New York, October 12-16. Dr. F. H. McMechan, 770 Westlake Road, Avon Lake, Ohio, Secretary.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Illinois, Managing Director.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Western Branch of American Urological Association, San Francisco, November 6-7. Dr. H. W. Howard, 193 Eleventh Street, Portland, Oregon, Secretary.

**Western Branch of the American Urological Association.**—The Western Branch of the American Urological Association will hold its seventh annual session in San Francisco on November 6 and 7, 1931, at the Hotel St. Francis.

The program will consist of scientific papers, wet and dry clinics, an opportunity to see the University of Washington versus the University of California football game, a golf tournament, and a dinner dance at Tait's-at-the-Beach.

Extensive plans are being made for the visiting ladies.

San Francisco makes a strong appeal to all visitors on account of its delightful climate and many facilities for entertaining guests. There are numerous motor drives on paved highways along the ocean and into the mountains with forests and lakes. Hotel accommodations are plentiful and reasonable, with excellent food. This will be a splendid outing for your family. Those who have the time can take the steamer here for Honolulu, which is one of the most delightful sea trips imaginable. The entire Pacific Coast offers a paradise for the motorist, and all types of accommodations can be secured.

The official hotel will be the St. Francis, San Francisco.

**Goiter Classification and Nomenclature.**—The American Association for the Study of Goiter is carrying on a campaign in favor of the following classification and nomenclature:

**Clinical Classification.**—Type 1, Nontoxic diffuse goiter. Type 2, toxic diffuse goiter. Type 3, nontoxic nodular goiter. Type 4, toxic nodular goiter.

**Nomenclature.**—The association advocates a policy of using the simplest and yet the most descriptive terminology possible.

The use of proper names, while it is impossible to dispense with many well-established ones in goiter literature, be discouraged; as should coined words invented to popularize a fad or fancy.

Emphasis should be made upon the importance of not confounding varieties and sequelae with types.

The use of such terms as exophthalmic, hemorrhagic, cystic, adolescent, colloid, intrathoracic, substernal, and congenital are perfectly proper when used to describe varieties, but only constant characteristics should be used to designate types.

**Honor Awarded to the President of the San Francisco County Medical Society.**—Because of his work in international medicine, Dr. Charles Pierre Mathé, president of the San Francisco County Medical Society, was elected a chevalier in the Legion of Honor of France.

### CORRESPONDENCE

#### Subject of Following Letter: Appointment of Dr. J. C. Geiger as Health Officer of San Francisco

*To the Editor:*—Dr. Jacob C. Geiger has just been appointed health officer for the City and County of San Francisco, California, to succeed the late Dr. William C. Hassler. As you know, Doctor Geiger is eminently qualified for this position both as to training and experience.

It occurs to me that there is an opportunity here for editorial comment in your publication which would render a great service to the public health movement in this country. It might be pointed out that Angelo J. Rossi, Mayor of San Francisco, is following the lead of Governor Pollard of Virginia and Governor Roosevelt of New York State in selecting a health officer without political consideration.

Almost immediately following Doctor Hassler's death, the Mayor instructed the Board of Health by memorandum that political affiliations and party lines should be laid aside in seeking a successor to Doctor Hassler. His memorandum pointed out that Doctor Hassler's thirty-one years of service in the health department, fifteen of which were as city health officer, had resulted in the development of a health department of exemplary standards, and that the city owed it to his memory, as well as to a recognition of the importance of public health work, to let nothing interfere with the selection of the most competent man available.

He suggested the appointment of an advisory committee, consisting of the deans of the University of California and Stanford Medical Schools, the president of the County Medical Society, the chairman of the San Francisco Health Council, and others, to consult with the board in the selection of the best candidate. The advisory committee, after careful study of the functions of a municipal health department and the qualifications presented by some ten candidates, unanimously recommended Doctor Geiger.

This morning's San Francisco *Chronicle* quotes Mayor Rossi as follows:

"San Francisco is to be congratulated on the appointment of Doctor Geiger as health officer. I was deeply concerned in the selection of a man who would be a worthy successor of the late Doctor Hassler, who brought our health department to its present state of recognized efficiency.

"In the selection of Doctor Geiger neither politics nor influence played any part. Guarding the health of our population is too serious a problem to admit of any criterion in the selection of a health officer other than outstanding and recognized ability in this highly specialized department of medical science."



Herewith is a brief statement of Doctor Geiger's qualifications should you care to use them.

*Biographical Data of Jacob C. Geiger, M. D.*

M. D., Tulane University, 1912.

Professor of epidemiology, University of California Medical School, and George William Hooper Foundation Medical Research.

Surgeon, United States Public Health Service Reserve since 1916.

Honorary Doctor of Public Health degree for important original research in mosquito control.

Eight years laboratory director of the California State Board of Health.

Five years executive officer and deputy health officer, Chicago Board of Health.

He has contributed valuable scientific articles over the last twenty years on many subjects, including papers on botulism, infantile paralysis, mussel poisoning, malaria control, and plague.

Sincerely yours,

W. P. SHEPARD, M. D.,

*Secretary Western Branch, American Public Health Association.*

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**Subject of Following Letter: Proper Term in State Health Reports for "Amebiasis"**

*To the Editor.*—I wish to call your attention to an incongruous situation in the requirements for reporting communicable disease in California. The State Board of Health makes "dysentery (amebic)" reportable, but does not mention amebiasis. Since dysentery is a relatively less common symptom of amebiasis, and since the important feature is the amebiasis, this ought to be changed to "amebiasis (*E. histolytica*).<sup>\*</sup>" This would obviate the reporting of deaths due to amebiasis when no "dysentery, amebic" has been reported.

Very truly yours,

ALFRED C. REED, M. D., San Francisco.

**OF GENERAL INTEREST \***

*Unemployment Insurance in Britain and Germany.*—Because of its close relationship to sickness insurance as part of the plan for state medicine, the subject of unemployment insurance should be of interest. Especially so, in connection with facts brought out in some of the medical economics papers of the September number of CALIFORNIA AND WESTERN MEDICINE.

In a recent address before the Virginia Bar Association, Governor Albert C. Ritchie of Maryland declared:

"It would be a calamity" if the experience of Great Britain and Germany with unemployment insurance plans were to be repeated in this country. The Maryland executive urged the development of unemployed insurance reserves "which will not impair American traditions we would preserve and which will not subject us to the unfortunate consequences and burdens which have resulted elsewhere."

Among other things he stated that in eighteen countries of the world unemployment insurance plans have been established and are in operation: Australia, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Irish Free State, Italy, Netherlands, Poland, Russia, Spain and Switzerland.

Those most available for our study and most applicable to our conditions are the British and German systems, and it would be a calamity if the experience of those countries were repeated in ours.

The British system was established in 1911, and was the first national compulsory unemployment insurance plan undertaken by any government. In the beginning

it covered not very many industries, and about 125,000 workers. It got off to a good start. Business was prosperous, and when the World War came there was practically no unemployment at all. So by 1920 a surplus of \$100,000,000 had been built up.

Then widespread unemployment came, and in the effort to relieve it and to look out for groups of political constituents each Parliament seems to have vied with its predecessor in extending the act so as to bring more and ever more workmen under it. This necessitated tremendous drains upon the national treasury.

Now the 2,250,000 insured have grown to 12,000,000, which is practically the entire working population of England, excluding, as the act does, agricultural laborers and domestic service.

The surplus has all gone, contributions from employers and workers have been greatly increased, and the advances from the government now aggregate over \$880,000,000, a considerable part of this being represented by loans from the treasury, which in all probability will never be paid.

During the past ten years the total cost of the system has been almost \$2,500,000,000.

The system is said to have degenerated so far that almost anybody out of work can demand a job as good as the best he ever had, and if he does not get it, he draws insurance benefits paid from the national treasury and from other peoples' money and lives on them.

Politicians are finding that it is no longer political suicide to attack the system, and since last December a Royal Commission has been at work trying to find out how the fund can be made solvent and self supporting, and how the unemployed who are capable of working and for whom work is available can be made to work.

The German system was established in 1927 and covered about four-fifths of the working population. At first farm labor and home workers were in the system, but this proved so expensive that they were soon taken out.

By January, 1929, the fund became insolvent, and had to borrow from the National Treasury. Within a year the government's advances reached \$80,000,000, and in April, 1930, the Reichstag voted to cancel the existing government loans and make a fresh start.

It then granted an annual subsidy from the treasury equal to one-half the deficit each year, the other half to be made up by increasing the contributions from employers and employees.

Under this plan the government's subsidy for 1930 was over \$48,000,000.

It appears to be too early yet to determine what the ultimate result will be, but it is generally conceded that the entire plan is unsatisfactory and imposes an incubus on the treasury from which the German government must be relieved, and in fact demonstrates the difficulties and obstacles inherent in any plan of state compulsory unemployment insurance.

In British and German experience these obstacles have so far proved impossible to overcome.

*How New York Is Conquering Diphtheria.*—Edward Fisher Brown, Director, Diphtheria Prevention Commission, Department of Health, City of New York, in a recent report, presented the following interesting facts on New York's experience in handling its diphtheria problem:

The expenditure of an average of \$140,000 a year, or about 2 cents per capita, has cut the diphtheria case and death rate more than 70 per cent each and saved the parents of New York City an average of \$5,000,000 a year.

Diphtheria will have become one of the rare diseases in the city by the close of the year 1933, and perhaps even before then, if the present rate of decrease in incidence and mortality is maintained.

In less than the three years the Diphtheria Prevention Commission has been functioning the case and death rate of diphtheria has been cut more than 70 per cent—and this in face of the fact that up until the first day of the current month less than 500,000 of the 1,450,000 children under the age of 10 years in the city had been immunized with toxin antitoxin. Just what results would have been attained had there been a more general response to the commission's appeal for immunization are not hard to estimate. We believe that if every mother had taken the trouble to have her children immunized that diphtheria would have been wiped out before the close of 1930.

Statisticians have estimated the economic loss caused by diphtheria in the city of New York for the twenty years prior to 1930 was \$127,712,000. They show that in the twenty-year period there were 246,792 cases, an average of 12,344 a year, and approximately 20,000 deaths, or an average of 1000 a year. They base the economic loss on the cost of medication, nursing and other inci-

\* The items printed in this column under the caption "Of General Interest" have been culled from medical journals and from authentic lay press sources such as the "United States Daily."



dentials due to illness; on the funeral costs and the standard economic valuation of a child's life. They placed the average cost of a diphtheria case at \$100 and each death at \$200, and the value of each child to the community at \$5000.

*The Rat Menace in Shipping.*—California has had its bubonic plague scares, the last having taken place in Los Angeles. The eradication of rodents is one problem to which constant attention must be given by public health officials. In every bubonic plague outbreak the United States Public Health Service gives special attention to the rodent problem in seaports, lest American ports be quarantined by other nations. The following item indicates how much effort is being given to the solution of this public health menace:

How and why rats go and remain aboard ocean vessels, in spite of all efforts to prevent or to get rid of them, is explained in an illustrated publication just issued by the Public Health Service. Rats, it is explained, are dangerous carriers of bubonic plague.

With world-wide interest high regarding the apparent failure of numerous drastic methods of driving rat populations from certain ships, the Public Health Service has found in studies that the primary answer to this question is "rat harborage," according to the publication. By means of making ships "rat-proof," the spaces where rats may hide during fumigation are eliminated, thus making it impossible for them to travel from one compartment of a ship to another in search of food or water.

*Number of Foreign Born Citizens in California.*—In the discussion of the etiologic factors of epidemic and other diseases, the race factor is often commented upon. The recent United States Census reports give some figures which should be of interest to Californians:

The total number of persons of foreign white stock in the state of California on April 1, 1930, was 2,110,112, comprising 810,034 foreign-born white persons, and 1,300,078 native white persons of foreign or mixed parentage. Of the foreign-born whites, 107,249 were born in Italy, 101,445 in Canada, 85,019 in England, 81,840 in Germany, 44,047 in Russia, and 41,734 in Sweden.

For practically all the countries shown in the tabulation the number of foreign born returned in 1930 was materially larger than the number of 1920. The great decrease shown in the total number of persons returned as foreign-born white with country of birth Mexico in 1930 (8,648, as compared with 86,610 in 1920), is due to the fact that Mexicans, who form 6.5 per cent of the total population of California, were for the most part in 1920 classified with the foreign-born whites or native whites of foreign or mixed parentage, but in 1930 they were given a separate classification, the instructions to enumerators directing "that all persons born in Mexico or having parents born in Mexico, who are not definitely white, negro, Indian, Chinese or Japanese, should be returned as Mexican."

The classification "native white or foreign or mixed parentage" comprises all native white persons having one or both parents of foreign birth. These persons are classified according to country of birth of father, except where the father is native and the mother foreign born, and then according to country of birth of mother.

On the basis of the country of birth of parents, 228,569 were assigned to Germany, 114,583 to England, 129,373 to Italy, 113,817 to the Irish Free State, and 32,079 to northern Ireland, 123,882 to Canada, 61,869 to Sweden, and 52,965 to Russia.

*National Leper Home at Carville, La.*—The psychologic reaction of the average layman to the word and disease known as leprosy is most interesting. A county board of supervisors or a city council which ordinarily would be indifferent and refuse to grant appropriations to overcome a public health menace such as an incipient outbreak of smallpox, will at once respond to public opinion, if the press gives out news that several lepers are loose in the community. In view of the widespread acceptance of the viewpoint that leprosy is incurable, a recent report from the United States Public Health Service may be of interest:

Pronounced no longer a menace to the public health, two persons formerly afflicted with leprosy have been released from the National Leper Home at Carville, La., according to Dr. Hugh S. Cumming, Surgeon General of the United States Public Health Service. This brings up to ninety-one the total number of lepers who have been released from the leprosarium after having received treatment there for leprosy. . . .

Until comparatively recent years, the aphorism "once a leper, always a leper," was sufficient to quench all hope in the afflicted and to bring consternation to family, friends and community. Within a generation, however, improved therapeutic measures and more concentrated and rational consideration from scientists have led to the conclusion that the lot of the leper is not necessarily hopeless, and each year increasing numbers of patients are being discharged from leprosariums either as "cured" or are paroled as no longer a menace to public health. . . .

Some of the patients at Carville respond to certain treatments better than do others. Taking chaulmoogra oil by mouth has been the treatment of many inmates of the home. This treatment also is administered by hypodermic injection.

*Tax Burden of California.*—A statement by Rolland Vandegrift, Director of Finance, State of California, touches on the pocketbooks of tax-paying physicians as well as those of other citizens. From time to time it is urged that physicians should take an active interest in lay and civil matters of a political and financial nature. For such as may be interested, the summary which follows suggests a number of queries:

At the close of the World War in 1919 California's total tax burden, including Federal, state, county, city and local taxes, was \$94.92 per capita. The state ranked seventh in the Union in total per capita taxes, being exceeded by New York, first; Massachusetts, second; Delaware, third; Rhode Island, fourth; Michigan, fifth, and Connecticut, sixth. At the same date out of each tax dollar expended in the United States 60 cents went to pay Federal taxes and 40 cents to pay local taxes. Five years later, in 1924, California was no longer seventh in the per capita tax burden but had risen to second place and was now only exceeded by New York. California's per capita tax burden for Federal, state and local taxes now stood at \$112 for each man, woman and child. The relative amount of the total tax burden had likewise changed and out of each tax dollar expended in the United States the Federal government now required but 40 cents while local government consumed 60 cents.

*Law Training Lower than that of Other Professions.*—Much has been written concerning the costs of medical education. The costs of professional training such as that of law are a something which would interest college students, and also parents who are considering placements of sons. A government report sheds light on this:

The study of law involves the least expense of any professional training, Walter J. Greenleaf, specialist in higher education, announced orally at the Federal Office of Education.

The average costs are about \$700 the first year, he declared. However, tuition varies from \$13 in Oklahoma to \$450 in Yale.

Legal education is conducted at a lower cost than any other professional work, and lower than many branches of collegiate study; some schools have shown large profits.

Tuition charged in the day law schools averages \$212 per college year of thirty-six weeks, the rates varying from \$13 in Oklahoma to \$400 in Harvard, Cornell and Pennsylvania, and \$450 in Yale. Tuition rates in the night schools average \$145. Thirty state universities which maintain law schools offer legal training to their state residents at minimum rates.

Most students who attend the night schools where rates are low work full time on regular jobs, paying their entire expenses out of a monthly salary. Law students find many opportunities to work their way; scholarships are available in twenty-seven institutions and should be applied for only through the dean of the school selected. Student loan funds are numerous.

To cover expenses of the first year about \$700 is necessary, varying up or down according to the thrift of the individual student. Estimating the cost of meals at \$1 per day, room at 50 cents per day, laundry at \$1 per week, and incidentals, including books and stationery, at \$47 per year, the student budget is a reasonable one, but does not include miscellaneous items, such as clothing, amusements, clubs, travel, and other personal expenses, which vary with taste or circumstances.



**Costs of Medical Education.**—The September number of the *Journal of the Association of American Medical Colleges* discusses the cost figures obtained from some forty medical colleges, the records being taken from 1253 expense books turned in in proper form and completeness, out of a total of some 7200 such expense books which were sent out beginning in the year 1921.

The summary which is printed thereon shows what are the costs of obtaining a modern medical education:

The averages drawn per year from these 1161 expense accounts are as follows: Tuition and fees, \$298.60; medical books, instruments, etc., \$105.68; board and room, \$388.54; clothing and laundry, \$137.30; travel, \$70.99; insurance and interest, \$77.45; recreation, \$76.63; miscellaneous, \$62.22. The average earnings per year were \$283.48. The investigation made by Dr. Leland reveals the actual sum spent by the student in any year as \$1100, this including tuition and fees, books and periodicals, board and room, clothing and laundry, and recreation. In 1920, by contrast, the amount was almost \$900. The figures submitted do not take into account the interest on the investment or the amount of money the young man might have earned were he in a gainful occupation rather than in a professional school. At the lowest possible estimate, apparently, a medical education must cost at least \$5000, and, if all the factors are taken into account, may cost in actual cash expended as much as \$10,000. If possible earnings and interest are added, the cost may actually reach \$20,000. In fact, Dr. Lytle, in a paper read before this association in 1926, stated that every medical graduate represented an actual investment of \$25,000.

**More Engineering Students than Placements.**—The difficulties which are encountered by many recent graduates in medicine to advantageously locate themselves extend also to some of the other professions. For instance, read what the federal department of education has to say regarding the placements of recent graduates in engineering:

A 40 per cent increase in enrollment in engineering schools of the country during the past five years narrows professional possibilities in some of the fields, as the saturation point approaches. W. C. John, specialist in professional education at the Federal Office of Education, stated.

Total enrollment in 145 leading engineering schools reached 78,685 for 1930-1931, of whom 12,161 were undergraduate seniors and 2939 students of graduate engineering.

Placement of graduates of engineering schools seems to be raising a problem as the number of students increases. Reports collected by F. L. Bishop, secretary of the society for the promotion of engineering education, indicate that but 38.2 per cent of the graduates of eighty-eight institutions this year have been placed. The reports involved 5866 graduates, of whom only 2240 were placed.

**Infantile Paralysis.**—Some of the eastern states are now having their worries with poliomyelitis outbreaks. In this issue of *CALIFORNIA AND WESTERN MEDICINE* is printed the paper read by Professor Aycock of Harvard at the recent California Medical Association's annual session at San Francisco, a perusal of which will indicate how much is still to be done before man can claim victory in the fight against poliomyelitis. The following is an excerpt from a recent report on conditions in the East:

A marked increase in the prevalence of poliomyelitis, or infantile paralysis, is reported at New York City, where the number of cases of this disease has increased from 5 to 195 during the period from July 1 to 25, according to an oral statement July 27 at the United States Public Health Service.

This increase has been so rapid that the City Health Commissioner, Dr. Shirley W. Wynne, and Dr. Thomas Parran Jr., State Health Officer of New York, called a special conference now meeting at New York City to consider measures of preventing further spread of infantile paralysis.

Preliminary reports show, however, that Massachusetts and Connecticut also have had increases in the number of cases of infantile paralysis, although the higher rates of increase in these two states are not as pronounced as is that of New York.

## COUNTY HOSPITAL PROBLEMS \*

### THE ALAMEDA COUNTY HOSPITAL ORGANIZATION—ITS "COUNTY INSTITUTIONS COMMISSION"

In the September *CALIFORNIA AND WESTERN MEDICINE*, page 244, in the account of the San Diego County Hospital organization, mention was made of the plan which was brought out in Alameda County several years before. Because county hospital problems are arising with increasing frequency, it seems desirable to print an outline of the mode of organization of the supervisory board of the Alameda County Hospital, since that plan may have suggestive value to county medical societies which are confronted with county hospital problems of their own.

From a personal letter received by the editor in February of 1929 from a colleague in Alameda County the following excerpts are taken because they shed light on the manner in which the Alameda Commission was formed:

"With particular reference to the Supervising Board of the County Institutions of Alameda County the following information is submitted. It would appear that just before the war the county institutions were having considerable difficulty from the standpoint of efficient operation and direct control of the Board of Supervisors. Certain public spirited men who had the interests of the county institutions at heart proposed to the Board of Supervisors at a public meeting that there be created a so-called "County Institutions Commission," the members of which should be citizens of note in the community, who would serve without pay and in whose hands the responsibility of the efficient operation of the county institutions would be placed. Each of the members received an appointment for varying terms, but after the original appointments the new appointments would be for eight years, so arranged that the term of no two members would lapse at the same time.

"The original commission consisted of seven members and was made up of a majority of laymen on the board; one or two physicians only serving the board. This number has since increased until today there are twelve members on the board—six laymen, including a woman, and six physicians. The chairman of the board is a layman; the vice-chairman a physician. The secretary of the commission also serves as secretary to the Medical Director. The Medical Director of the county institutions is also the executive officer of the "County Institutions Commission" and is responsible through the "County Institutions Commission" to the Alameda County Board of Supervisors. You will appreciate that this "County Institutions Commission" actually has no authority except the authority conferred upon them by the Board of Supervisors, but they do represent an impartial group of public-spirited citizens who are assumed to serve only in the interests of this hospital administration and to maintain the proper standards of medical care and treatment of patients who are being cared for at the hands of the public.

The "County Institutions Commission" also practically eliminated political influence in the operation of the county hospitals of Alameda County. It would appear that this type of men would prohibit any less than the highest standards both from an administrative and professional standpoint being maintained in the county institutions. The public sentiment behind each of these men would demand no less than such standards being maintained. At this moment there is serving on the "County Institutions Commission" the president and general manager of a large calculating machine company; the owner and manager of a large East Bay newspaper; two very prominent attorneys; the president of Mills College; and a representative of labor. Among the physicians we have as vice-chairman Doctor Hamlin, also the president of the Alameda County Medical Society; the trustee in charge of Merritt Hospital, a former president of the County Medical Society, and a physician who has been formerly Department Commander of the American Legion. . . .

From the above it will be noted that the original "County Institutions Commission" of Alameda County was made up of only six members whereas now it is composed of twelve members, six of whom are laymen, the other six being physicians.

\* See editorial on County Hospital Problems in *California*, in this issue of *California and Western Medicine*, page 315.



The resolutions which brought the "County Institutions Commission" into existence on July 16, 1917, follow:

#### PREAMBLE

Whereas, The increasing volume and growing complexity of the business of the County of Alameda compel its Board of Supervisors from time to time to create new administrative agencies, in order that the service rendered to the people may continue efficient and effective; and

Whereas, In particular, the County Hospital, Tuberculosis Hospital and the County Infirmary constitute a group of county institutions little related in their activities to the other business of the county, but calling for special knowledge, attention and supervisions; and

Whereas, Both from the survey of county institutions made at the request of the Board of Supervisors by the State Board of Charities and Corrections, and from the independent information of the Board of Supervisors itself, it appears that the future needs of such institutions will be best served by vesting in a special commission acting under the Board of Supervisors the administration and direction of such institutions;

#### RESOLUTION †

Resolved, By the Board of Supervisors of Alameda County as follows:

Section 1. Appointment of Board.—There is hereby created a County Institutions Commission (hereinafter called the Commission) (consisting of six members, to be appointed by the Board of Supervisors. The members shall hold office for the term of eight years, provided that of those first appointed, one shall hold office for three years, one for four years, one for five years, one for six years, one for seven years and one for eight years) from the first Monday in July, 1917. Those first appointed shall classify themselves by lot as to terms of office. Whenever a vacancy occurs in the Commission it shall be filled by the Board of Supervisors from nominees recommended by the State Board of Charities and Corrections, and if for any uncompleted term, said appointment shall be made for the uncompleted balance of the term. Members shall serve without pay. Each member shall have been a resident of the county for at least one year preceding his appointment.

Section 2. Removal of Commissioners.—In cases of misconduct, inability or wilful neglect in the performance of the duties of the office, any member of the Commission may be removed from office by the affirmative vote of four members of the Board of Supervisors. Such member sought to be removed shall be given an opportunity to be heard in his own defense at a public hearing, and shall have the right to appear by counsel and to have process issued to compel the attendance of witnesses, who shall be required to give testimony, if such member of the Commission so requests. A full and complete statement of the reasons for such removal, if such member be removed, together with the findings of fact made by the Board of Supervisors, shall be filed by the Board of Supervisors with the County Clerk and made a matter of public record.

Section 3. Powers and Duties of the Commissioners.—The Commission shall have jurisdiction over the County Hospital, the County Infirmary and the Tuberculosis Hospital of the County of Alameda, of all employees thereof, and of all activities carried on therein, and of all institutions for the sick, injured or infirm maintained and operated by the County of Alameda, not including therein the emergency hospital.

The Commission shall create eligible lists temporary or permanent, covering all places of employment or service in said institutions. Whenever a position in any of said institutions is to be filled, the Board of Supervisors shall make requisition in writing upon the Commission, and the Commission shall certify to the Board of Supervisors the one person having the highest standing on the eligible list for the position; provided, that should there be a person on a reinstatement list for the vacant position, the Commission shall first certify the name of the person or persons having the highest efficiency rating on said list. The Board of Supervisors shall appoint no person to a position in any of said institutions, except such person as is certified to it by the Commission.

The Commission shall grade, classify and group places of employment and of service in said institutions, and shall make provisions for removals, promotions, transfers, lay-offs, reinstatements, suspensions, leaves of absence, appeals, trials; for establishing and changing compensations or titles, giving and holding examinations; probationary periods; and for demotion and discipline, as to all places of employment of service and as to all persons holding positions in any of said institutions. In every matter coming within its jurisdiction which under the laws of the State of California requires action by the Board of Supervisors, the Commission shall certify its action to the Board of Supervisors, which at its next meeting thereafter shall adopt the same by resolution.

As to all said institutions, the Commission shall have jurisdiction over the creation of positions, the compen-

sation and titles of the same, the abolishment of positions and the vacating of the same, and the conduct of all occupants of positions; the design and construction of buildings; and the management, conduct and operation of each institution.

The Commission shall make and enforce rules and regulations to improve and regulate said institutions and the conduct thereof and the efficiency of the same, and to carry out the other purposes of this resolution.

No claim for any salary or compensation for services nor for any supplies or equipment rendered in or furnished to any of said institutions shall be presented to or will be considered by the Board of Supervisors unless the pay roll or claim for the same shall bear the certificate of the Commission by its secretary, that the persons named in the pay roll have been appointed or employed and are performing services in accordance with this resolution and with the rules and regulations of the Commission and that the supplies or equipment have been furnished and received.

Persons holding places of employment or service in said institutions at the time of the passage of this resolution shall continue therein until the Commission shall certify otherwise, pending the formation of the eligible lists hereinabove provided for.

Section 4. This resolution shall take effect immediately.

## TWENTY-FIVE YEARS AGO\*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume IV, No. 10, October 1906

From some editorial notes:

*Our Wicked San Francisco.*—A short time ago our "esteemed contemporary" of Philadelphia, *American Medicine*, casually referred to San Francisco, editorially, as "the wickedest city in the United States," and incidentally made some very unpleasant remarks about its "wickedness." And this from Philadelphia! Will *American Medicine* please be good enough to tell us wherein our former wickedness mostly lay? Was it because the people were—and thank the good Lord, still are—a pleasure-loving, cheerful, high-spirited, care-free lot, taking life easy and not at all with undue seriousness, getting all the fun and the pleasure out of each day that may be wrested from it, and not bothering too much about the other fellow's business or his ancestors, so long as he is a good fellow? Or was the epithet applied because of the existence of those world-famous French restaurants, where liberty was directly, and "respectability" inversely as the altitude? Surely, from Philadelphia, "corrupt and complacent" for so many, many years, some more explicit arraignment should be vouched for denying its own supremacy and designating poor scotched San Francisco as the "wickedest city in the land." . . .

*Available Locations.*—From time to time inquiry is made at the office of the society either for available locations or for men to take such openings. It is a pleasure to be of assistance in these matters, and we trust that no one will ever think it a trouble or bother to the secretary to give his aid whenever possible. Just at the present time there are two or three openings which the right man might secure and develop into good locations. . . .

*Bad Books and Good.*—No one who practices medicine, and especially no one who does much fracture work, but dreads sooner or later the affliction of the blackmailing malpractice suit. McCormack has said that nine times out of ten some jealous or disgruntled fellow practitioner may be found behind such suits, backing up the plaintiff, if not indeed inspiring him to sue. This is probably true, and the remedy he sug-

† Editor's Note.—These were the original resolutions. The editor has not at hand subsequent amendments thereto.

\* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.



gests is ideal—closer and more friendly relations between the members of our profession and more perfect and harmonious organization. . . .

*San Francisco Physicians.*—From all accounts, the unchecked riot of crime, of “hold up” and robbery, of looting and murdering in San Francisco gets worse rather than better as the weeks go by. It has come to pass that to be on the streets after dark is to court robbery or worse, and to visit certain sections of the city at night is almost to insure this welcome. To physicians, especially, such a condition of things is a constant menace, for the physician may be called at any time to any part of the city. . . .

*From an article on “The Seventy-Fourth Annual Meeting of the British Medical Association, Held at Toronto, August 24, 1906 (Reported for the Journal by Dr. Langley Porter.)*

It has been a great pleasure to see American and British physicians fraternizing at this, the seventy-fourth annual meeting of the British Medical Association, which has been, in effect, a gathering of medical men from the English-speaking world. . . .

*From an article on “Spiral Organisms in Relation to Syphilis” by Theodore G. Davis, M.D., Los Angeles.*

So much interest has been manifested in Schaudinn's announcement of the discovery of the organism causing syphilis, and so positive is the evidence accumulating in its favor, that I am led to ask you to consider with me its value as a means of making an early differential diagnosis of syphilis. . . .

*From an article on “Subnormal Accommodation as a Manifestation of Hysteria” by F. B. Eaton, M.D., San Francisco.*

The term “subnormal accommodation,” which has a considerable vogue, is open to the objection that it is merely a symptomatic title. The condition certainly has been largely overlooked in the routine of eye tests, and the indications it affords for treatment have not been either recognized or utilized as they should. . . .

*From an article on “Note on Hydrocyanic Acid Poisoning” by T. C. McCleave, M.D., Berkeley.*

The infrequency of recovery after hydrocyanic acid poisoning may perhaps give the following report at least some clinical interest, although it contains no new or important scientific data. . . .

*From a news item:*

*Oakland College Students.*—It is a pleasure to note that all of the students graduated from the Oakland College of Medicine and Surgery, recently, passed the examinations of the State Board most creditably. These were the first graduates from that institution and indicate that the promises of high standard, made by the faculty some four years ago when the College started, have been fully kept.

## DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M.D., Director

**Relapsing or Spirillum Fever.**—(By K. F. Meyer, Consultant to the State Department of Public Health. From the George Williams Hooper Foundation, University of California, San Francisco). Since 1921 it was known that sporadic relapsing fever is indigenous

along the eastern border of California and in Nevada. Previously Meader (1915) saw cases which originated in the Bear Creek Canyon of Colorado, and more recently Weller and Graham (1930 and 1931) reported the endemic occurrence of the disease in central Texas, near Austin. The microscopic demonstration of the spirochaete in California was first accomplished by Briggs in 1921 on the blood smears of two patients who contracted the infection in the vicinity of Polaris, Nevada. Two cases were reported in 1930 from the same region and one from a place eighty miles south of Reno, Nevada. Other cases observed during the same year originated in the mountain regions of southern California. During the months of June and July of this year spiral bodies were again seen in four blood preparations made from patients who had camped in widely separated areas of the eastern California mountain ranges at an altitude above 5000 feet. Data concerning the distribution and frequency of this particular malady would be of greatest value in order to institute preventive measures if practical. The physicians and health officers must assist in the collection of this information. The State Department of Public Health has, therefore, made relapsing fever a reportable disease. It is the purpose of this brief statement to present a description of this very interesting infection.

*Clinical Symptoms.*—The incubation time is not definitely known. In the cases observed by Briggs the symptoms developed eight days after an insect bite had been noticed. By analogy with other spirochaetal infections it may be assumed that the incubation period is probably under twelve days. Prodromal symptoms are usually absent. The patient is suddenly seized by severe frontal headache and chilliness lasting from fifteen minutes to several hours. The mounting fever may be accompanied by anorexia, nausea, vomiting, and giddiness, which force the patient to take to bed. An examination elicits a temperature of 104 degrees Fahrenheit or higher, increased pulse rate, flushed face, hot skin, coated tongue, a slightly icterus tinge of the conjunctiva, and tender liver margins. In the cases thus far seen the spleen was not definitely palpable. Muscular and joint pains, particularly the thighs and wrists, may be very pronounced. This attack may last two to several days, the symptoms increasing in severity to a crisis which manifests itself in a rapid falling of the temperature to normal, profuse sweating, and an apparent restoration to health. As a rule this is not the end of the disease but merely one paroxysm which is followed by an afebrile interval. A relapse may occur in from five to seven days after the crisis of the first attack. The symptoms may be the same as those noted during the first attack, but it is usual for them to be less severe and of shorter duration. In some cases observed in Nevada and California a second, third, and fourth relapse of the same intensity as the first attack have been recorded. However, complete recovery after the first relapse may take place.

During the initial attack a macular rash and herpes labialis may be present. Constipation is usual although diarrhea may follow the crisis. The urinary findings may be entirely negative and the blood examination reveals during the paroxysms a slight mono- or polynuclear leukocytosis. If the patient is permitted to have repeated paroxysms he loses weight and may exhibit a yellowish icteric discoloration of the skin.

*Diagnosis.*—The definite diagnosis is easily established by the finding of the spirochete, or *spirochaeta recurrentis*, the causative organism, in the blood during one of the paroxysms. A drop of fresh blood is either examined by direct light or by darkfield illumination. The motile, wave-like or corkscrew-shaped spirals moving back and forth or in circles between the red corpuscles are readily recognized. The india ink method and its modification may take the place of the darkfield illumination. A direct thick or thin smear of the blood and stained by any one of the polychrome stains, such as Wright's or Giemsa's, is equally satisfactory. In case the parasites are few it



is advisable to examine thick blood drops which have been laked with distilled water before they are fixed with alcohol or acetone. They are then stained for at least one hour with the polychrome stain diluted in slightly alkaline distilled water (pH 7.8 to 8.0). Excellent preparations are also obtained with dilute carbolfuchsin or gentian violet, provided the smears are fixed (one minute) in formalin (twenty parts) acetic acid (1.0 part) solution (distilled water 100.0), covered with ten per cent tannic acid solution and steamed for a minute, thoroughly rinsed in tap water and then stained with carbolfuchsin. In such preparations all parasites are deep red. It is important to emphasize that in mild attacks the spirochaetes may be scanty and a prolonged search will be required for their detection.

**Differential Diagnosis.**—Sporadic cases are readily confused with malaria and influenza. For differentiation, the finding of the parasites is essential. Relapsing fever should not be mistaken for undulant fever.

**Prognosis.**—The disease tends to be self-limiting. Since the arsenicals have been found to be specific the duration of the disease can be shortened and the mortality reduced to exceedingly low figures. The California and Nevada cases have promptly responded to therapeutic intravenous injections of 0.3 to 0.6 gram nearsphenamin. However, it is advisable to keep the patient under observation for at least three weeks following apparent recovery.

**Etiology and Mode of Transmission.**—A cursory examination of the blood smears prepared from the few recent cases reveals a spirochaete with an average length varying between 15 to 26 micro. No morphological differences between other blood spirochaetes have been observed. Detailed comparative studies will be required to prove the identity of the parasite with *Spirochaeta novyi*, the spirochaete observed by Weller and Graham in Texas or the parasite described by St. Jones and Bates from Central America. Preliminary tests have proven the transmissibility of the parasite to macacus monkeys, rats, and mice. The infection in the monkeys tends to relapse, in the rodents it is mild and of very short duration.

Nothing definite is known regarding the mode of transmission. By analogy with other relapsing fever spirochaetes insect vectors are suspected. It is well known that lice and ticks transmit the parasites not by their bite, but indirectly by the contamination method. The accidental crushing of an infected louse liberates the spirochaetes which find ready entrance to the human host through the abrasions caused by scratching. Likewise, the transmission by tick is indirect. The feces and the excretions of the coxal glands contain the spirochaetes and thus convey the infective agent to the bite wound. The early histories of the Nevada and California relapsing fever cases invariably note the occurrence of a bite due to an insect. Some patients saw a small brown bedbug-like arthropod while others describe ticks. In the regions in which the cases have occurred, ticks of the species *Ornithodoros* are known to occur. The recent observations in Texas have proven that *Ornithodoros turicata* is the transmitting host of the relapsing fever spirochaete in that region. This insect lives in an arid, hot climate, and has been found in the burrows of ground rodents on which it feeds. The larval, nymphal and adult stages of the tick are infectious, since the parasite is hereditarily transmitted through the egg. It is known that this species of tick bites man and animals, particularly during the night. Peculiar feeding habits prevent it from remaining on the host for more than thirty minutes. As a rule the tick drops off immediately after the bite.

Thus far the existence of this tick in California and its rôle as a vector for relapsing fever in the state is a matter of conjecture. The peculiar occurrence of these infections during the summer months when ticks are particularly active, rather forcibly suggests

that this or a closely related species of *Ornithodoros* must bear the stigma of being the transmitting hosts until investigations now in progress have been completed. The brilliant studies of Nicolle and Anderson on relapsing fever in Tunis indicate that the blood spirochaetes commenced as parasites of small mammals and that burrowing rodents serve as reservoirs of the disease. Similar conclusions have recently been drawn by Mathis with respect to the Senegal fever and by Clark, Dunn, and Benavides with regard to relapsing fever observed in Panama. The spirochaetes found in the rats and mice in Senegal, or squirrel-monkeys of the Isthmus are apparently identical with the human spirochaetes observed in these regions. It is, therefore, not unlikely that relapsing fever is primarily a disease of mammals and that the vector merely transmits the virus to man accidentally. Furthermore the relation between any particular spirochaete and the tick by which it is transmitted in nature is only a geographical one. From the standpoint of prevention it is evident that the habits of the invertebrate carrier is the only check on the spread of the spirochaetal infection they transmit. Until they are known the early recognition and prompt treatment with arsenicals is obviously important.

**Relapsing Fever in California.**—The following cases of relapsing fever have been reported to the State Department of Public Health: 1921, two cases; 1930, five cases; 1931 (to date), five cases.

On July 11, 1931, the State Board of Public Health passed a resolution declaring relapsing fever a reportable disease.

Health officers and physicians are urged to immediately notify the State Department of Public Health at San Francisco regarding any suspected or proven cases brought to their attention. An investigation of the possible sources of infection is being conducted and the immediate notification of cases and suspects is essential for the success of this study.

**Malaria Survey.**—Only thirteen positive examinations for malaria were found out of 1109 blood smears taken in a malaria survey of Shasta and Tehama counties. Most of these positive smears were obtained in the southern part of Shasta County. Among the localities surveyed were Anderson, Cottonwood, Los Molinos, Vina, Latona and Deer Creek School District. As a matter of fact, the prevalence of malaria in the northern section of the state has been reduced greatly, and the favorable results of this survey indicate that malaria has almost disappeared from California.

**Recent Appointments to the State Board of Public Health.**—Governor James Rolph, Jr., has appointed Dr. William R. P. Clark and Dr. John H. Graves as members of the State Board of Public Health to succeed Dr. Adelaide Brown and Dr. Edward F. Glaser, resigned.

Doctor Clark has served as a member of the faculty of Stanford University, School of Medicine, and for over twenty years has served as a member of the board of directors of the San Francisco Tuberculosis Society. For many years he has been director of the Bureau of Tuberculosis, San Francisco Department of Health, and in that position has been in charge of the Tuberculosis Division of the San Francisco Hospital and of the San Francisco Health Farm.

Doctor Graves has been engaged in the practice of medicine in San Francisco since 1896. During 1918 he served as president of the San Francisco County Medical Society, and during 1921-1922 as president of the California Medical Association.



CALIFORNIA BOARD OF  
MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.  
Secretary of the Board

Results of Board of Medical Examiners Examination  
Los Angeles, July 1931

Charles B. Pinkham, M. D., secretary-treasurer of the Board of Medical Examiners of the State of California, reports results of the written examination held in Los Angeles, July 21 to 23, 1931. The examination covered nine subjects, and included ninety questions for physician and surgeon applicants. An average of 75 per cent is required to pass. An allowance of one per cent added to the general average is allowed by the Medical Practice Act for each year of medical practice under a license granted elsewhere than in California, provided the applicant has not fallen below 60 per cent in more than one subject.

A total of eighty-seven applicants wrote the examination. Eighty graduates of medical schools passed (91 + per cent), and seven failed (8 + per cent).

The following is a list of the successful applicants for physicians and surgeons' certificates:

- Robert Emmett Austin, San Diego.
- Samuel Kenneth Bacon, Los Angeles.
- Bertha Blumer, Hollywood.
- Frederick Martin Boothby, Los Angeles.
- Kenneth Harold Boyer, Los Angeles.
- Donald H. Brumbaugh, Redlands.
- William Tracy Burton, Los Angeles.
- Phillip Conrad Casper, Los Angeles.
- Marshall E. Christmann, Los Angeles.
- George L. Cody, Los Angeles.
- Abraham J. Diamond, Los Angeles.
- Leonard Garrard Dobson, Fresno.
- Melvin Alison Drake, Eagle Rock.
- Paul K. Edmunds, Los Angeles.
- Paul A. Exelby, Los Angeles.
- Michael Flatley, Weimar.
- Keith Curtiss Flower, Los Angeles.
- Charles Allison Foulks, Jr., Long Beach.
- James Albert Gafford, Jr., Los Angeles.
- Rae B. Gibson, Los Angeles.
- Elmer Wilhelm Gilbert, Los Angeles.
- Clarence Theodore Halburg, Jr., Glendale.
- Richard Thorley Hamer, Sidney, B. C., Canada.
- Joseph William Hankins, Pasadena.
- Dorothy Harpham, Mentone.
- L. Louis Harrop, Los Angeles.
- Joe Spangler Haskell, Los Angeles.
- Tadao Hata, Honolulu, Hawaii.
- Harry Herman Heidenreich, Los Angeles.
- Herman Stewart Hendrickson, Los Angeles.
- Lloyd Ralph Hershberger, Los Angeles.
- Maurice James Hoilien, Pasadena.
- Benjamin Sidney Hollombe, Los Angeles.
- Howard A. Huenergardt, Los Angeles.
- Clarence Shinn Ing, Los Angeles.
- Esli Collins Innis, Los Angeles.
- Frank John Janssen, Los Angeles.
- Evan Morgan Kackley, Los Angeles.
- Raymond M. Kay, Los Angeles.
- Walter Ross Lane, New Westminster, B. C., Canada.
- Paul Leach, Los Angeles.
- Harold Hsing Lee, Los Angeles.
- Lester Lonergan, Loma Linda.
- Chester Huntly MacKay, Los Angeles.
- Donald Stuart MacKinnon, Los Angeles.
- Donald Barber Marchus, San Diego.
- Harry Raymond McVicker, Lodi.
- Giordano Modesto, Riverside.
- Elmer Soren Mortensen, Brentwood Heights.
- Lyle Albert Mourer, Buena Park.
- Homer Clifton Oatman, Jr., San Diego.
- Vera LaVetta Ocker, Los Angeles.
- James Joseph O'Connor, Los Angeles.
- George Frederick Paap, Long Beach.
- George B. Pimentel, Fresno.
- J. B. Melville Price, Orange.

- Edward K. Prigge, Los Angeles.
- Paul William Prince, Long Beach.
- William Francis Quinn, Los Angeles.
- John Rodney Rankin, Los Angeles.
- Albert Harold Reiswig, Loma Linda.
- Irving LeRoy Ress, Los Angeles.
- Wilbur George Rogers, Los Angeles.
- Leon Rosove, Los Angeles.
- Harry Allan Roth, Los Angeles.
- Harley Stuart Rupert, Oklahoma City, Oklahoma.
- Madge Quick Schlotthauer, Bakersfield.
- Harold Louis Schlotthauer, Bakersfield.
- J. Lyle Spelmann, Glendale.
- Paul Vine Starr, Los Angeles.
- Jean Frances Stewart, Battle Creek, Michigan.
- Ludwig Webster Sundquist, Los Angeles.
- Robert Hofer Thompson, Los Angeles.
- James Stewart Walsh, Los Angeles.
- Samuel Weissross, Los Angeles.
- William M. Wilson, Los Angeles.
- Lewis Robert Wolberg, Los Angeles.
- Wesley Milton Wright, Los Angeles.
- Goonzo Yamashita, Los Angeles.
- Richard A. Young, Los Angeles.

The following medical colleges were represented:

| School                                                    | PASSED             |                                                            |
|-----------------------------------------------------------|--------------------|------------------------------------------------------------|
|                                                           | Year of Graduation | Per Cent                                                   |
| College of Medical Evangelists.....                       | (1930)             | 85 8/9, 76 5/9                                             |
|                                                           |                    | 78 1/9                                                     |
| College of Medical Evangelists.....                       | (1931)             | 85 1/9, 82 1/9                                             |
|                                                           |                    | 87 1/9, 83, 88 5/9, 80 1/9, 83 4/9, 86 3/9, 83, 85, 86 1/9 |
|                                                           |                    | 81 8/9, 86 1/9, 81, 83 1/9, 17/9, 82 3/9, 84 4/9, 87 7/9   |
|                                                           |                    | 85 5/9, 77 6/9, 86 6/9, 85 3/9, 88, 87 1/9, 85 4/9, 86 2/9 |
|                                                           |                    | 84 5/9, 84 4/9, 87, 88 5/9, 83 6/9, 88 4/9, 82 4/9, 89 1/9 |
| Creighton University School of Medicine .....             | (1931)             | 82 8/9                                                     |
| Harvard University Medical School.....                    | (1930)             | 85 8/9                                                     |
| Loyola University School of Medicine .....                | (1930)             | 75 4/9; (1931) 80 1/9, 85 2/9                              |
| McGill University Faculty of Medicine (Canada).....       | (1930)             | 80; (1931) 85 1/9                                          |
| Northwestern University Medical School.....               | (1930)             | 89 7/9, 89 6/9; (1931) 83 3/9, 83 1/9, 85 6/9              |
| Royal University of Naples (Italy).....                   | (1916)             | 75 5/9                                                     |
| Rush Medical College.....                                 | (1931)             | 84 4/9                                                     |
| Stanford University Medical School.....                   | (1931)             | 86 4/9, 84 6/9                                             |
|                                                           |                    | 89 6/9, 83 8/9, 90 3/9                                     |
| Syracuse University College of Medicine .....             | (1930)             | 84 6/9                                                     |
| Tufts College Medical School.....                         | (1930)             | 88                                                         |
| University of California Medical School .....             | (1931)             | 80 4/9, 83 3/9                                             |
|                                                           |                    | 85 2/9                                                     |
| University of Colorado School of Medicine.....            | (1930)             | 79 6/9, 82 2/9; (1931) 84 7/9, 82 2/9                      |
| University of Illinois College of Medicine .....          | (1929)             | 83; (1931) 82 8/9, 80 6/9, 79 3/9                          |
| University of Iowa Medical Department .....               | (1930)             | 76 4/9                                                     |
| University of Kansas School of Medicine .....             | (1930)             | 78 8/9                                                     |
| University of Manitoba Faculty of Medicine (Canada) ..... | (1925)             | 82 8/9                                                     |
| University of Michigan Medical School .....               | (1931)             | 86 3/9                                                     |
| University of Oregon Medical School .....                 | (1931)             | 88 8/9                                                     |
| University of Pennsylvania School of Medicine .....       | (1929)             | 85 5/9                                                     |
| University of Toronto Faculty of Medicine (Canada) .....  | (1918)*            | 74 2/9 + 8 = 82 2/9                                        |
| University of Vienna Faculty of Medicine (Austria).....   | (1930)             | 75 8/9                                                     |
| FAILED                                                    |                    |                                                            |
| Creighton University School of Medicine .....             | (1930)             | 74 4/9, 73 8/9                                             |
| Trinity University Medical Faculty (Canada) .....         | (1904)             | 61 2/9                                                     |
| University of Illinois College of Medicine .....          | (1931)             | 74 6/9, 73 2/9                                             |
| University of Oregon Medical School .....                 | (1930)             | 74 3/9                                                     |
| University of Vienna Faculty of Medicine (Austria).....   | (1930)             | 66 6/9                                                     |

\* Credit for years of practice.

### State Board News Items, October 1931

"Dr. Percival Dolman, San Francisco physician and surgeon, was named on the Board of Medical Examiners, succeeding Dr. William R. Molony, Los Angeles" (Santa Barbara *News*, August 15, 1931).

"Move to obtain legislative action which would revoke a surgeon's license in the event it could be shown the surgeon performed an 'unnecessary' operation was launched in San Francisco today by the California Chiropractors' Association. Chiropractors are not allowed to practice surgery. According to Dr. Harry C. Bond, president of the organization, seventy-five members voted to draft a measure on the subject for submission to the next legislature" (San Francisco *Call-Bulletin*, August 14, 1931).

"Six Chinese herbalists of Sacramento today were under arrest on charges of practicing medicine without a license. The arrests were made following an investigation by J. W. Davidson, special agent for the State Board of Medical Examiners." (United Press dispatch dated Sacramento, July 31, 1931, printed in Richmond *Independent*, July 31, 1931.)

"Because he assertedly was under the influence of liquor while treating victims of a knife battle, Dr. Maceo M. Cloud of 868 East Fortieth Street was under arrest today . . ." (Los Angeles *Express*, August 12, 1931).

Note.—No such individual appears on the records of the Board of Medical Examiners.

"Immediately after he had been fined \$200 for practicing medicine without a license, William J. Conway, local Indian 'doctor,' this morning was charged for the fourth time with the same offense in a complaint filed by J. W. Davidson, inspector for the State Board of Medical Examiners . . ." (Chico *Enterprise*, August 26, 1931).

Reports relate that J. C. Cowle, Los Angeles chiropractor, was on August 27, 1931, found guilty of violation of the Medical Practice Act, and on August 31, 1931, was sentenced to pay a fine of \$300 or serve thirty days in the city jail.

The eyesight swindlers recently active in California are reported to have mulcted a Walla Walla, Washington, family of \$4100 through their purported radium cure for blindness, obtaining \$1600 for putting a few drops of alleged radium water in the daughter's eyes. Later two other members of the "company" appeared and told the family that the first doctor had been killed in an automobile accident, and that his dying wish was that they should return to see whether his treatment had been successful. After examination of the girl's eyes, they found "germs" still present, and obtained \$2500 additional as a deposit on a "marvelous" electric belt which they claimed was the only one in this country, it having been obtained from a German scientist stranded here during the war.

"Appointment of Charles M. Fickert, former district attorney of San Francisco, as attorney for the State Board of Medical Examiners, succeeding Richard M. Lyman, was announced here. . . ." (News item dated Sacramento, September 2, 1931, printed in San Francisco *Recorder*, September 3, 1931.)

"Dr. Karl Lewis, residing at 615 North Beverly Drive, with offices in the Beverly Hills Professional Building, Beverly Hills, was placed before Judge H. E. Billings in the local justice court by Constable Arthur Russell on Tuesday of this week on two charges, failure to report a contagious disease and failure to take a culture from the throat and submit it for examination . . ." (West Hollywood *Tribune*, July 31, 1931).

"Convicted today before Municipal Judge Harold B. Landreth, Christ L. Maessel, charged with practicing medicine without a license, was fined \$600 and sentenced to serve 180 days in jail . . ." (Los Angeles *Herald*, August 13, 1931).

Investigation report relates that this individual was using the annual tax receipt originally issued by the Board of Medical Examiners to Peter Olson, deceased, Olson's signature having been erased and the name "Dr. C. L. Maessel" written in.

"Wilbur Lester Parker, ex-convict, in the Alameda County Jail (for 180 days) for violating the Medical Practice Act, applied for a California medical license application blank from a cell in the federal prison at McNeil Island. That was announced today by Dr. Charles B. Pinkham, secretary of the State Board of Medical Examiners, after check-up on Parker's police record. Doctor Pinkham said the form was forwarded in the belief Parker was a prison physician, and added that the convict after release used the papers to improvise a bogus California license. Doctor Pinkham said that Parker, who has a police record, actually appeared in the Delta Tau Delta fraternity house, University of California, a few days ago, posed as a member of a famous Minnesota clinic, and undertook examination of one of the students. He was subsequently arrested" (San Francisco *Examiner*, September 9, 1931). Two medical insignias which adorned the front and rear of Parker's automobile were reported stolen in San Jose about August 23 or 24, 1931, from the automobiles of Alson A. Shufelt, M.D., and Cletus S. Sullivan, M.D.

*The Training of Specialists.*—In Denmark the state has laid down the requirements for the training of specialists and forbidden the assumption of title of specialist by anyone who has not had suitable training, and is adding rigorous requirements for the continuous education of those who lead in the medical practice of that country. We should adopt a similar plan in this country. We have the facilities. Medical and surgical practice would have a new meaning and command greater respect when we do away with so much service by the incompetents who are now posing as specialists.—*Journal of the Indiana State Medical Association*, March 15, 1931.

*Floating Schools on England's Canals.*—Three schools for canal-boat children have been established at strategic points along England's maze of inland waterways, says the *World's Children* of London. It seems appropriate that the one most recently equipped is on a barge moored at a canal center. There are about 1700 children in the 500 canal-boat families, whose only homes are on the constantly traveling boats, and their education has been a serious problem. These floating schools are considered only a temporary expedient, for it is expected that the proposed substitution within a few years of motor-driven boats in canal traffic will so speed it up that employees will be able to live on land and send their children to the regular schools.—*United States Children's Bureau, Washington, D. C.*



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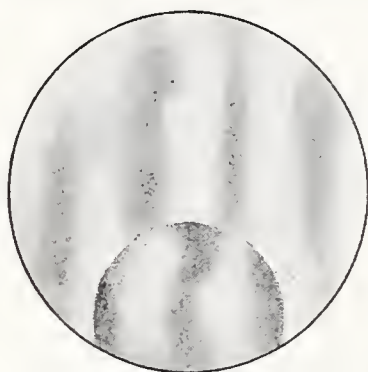
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## TRUTH ABOUT MEDICINES

(Continued from Page 31)

by the sponge dough method, in sliced loaf form. It is claimed to be a bread of good quality.

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**Liberty Grade A Bread (Liberty Baking Company, Pittsburgh, Pa.).**—A white milk bread made by the sponge dough method. It is claimed to be a bread of good quality.—*Journal of the American Medical Association*, August 15, 1931, p. 463.

### ACCEPTED DEVICES FOR PHYSICAL THERAPY

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**Eveready Solarium Type Carbon Arc Lamp.**—It is designed to administer therapeutic light treatment simultaneously to groups of patients. The lamp is designed to be attached to the ceiling. The length of the unit is approximately three feet and the width

(Continued on Page 40)



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Excerpts from American Medical Association Essentials for an Approved Clinical Laboratory

## DEFINITION

*"\* \* \* A clinical pathologic laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body."*

*"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."*

*"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."*

## THE DIRECTOR

*"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."*

*"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."*

*"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."*

*"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."*

## RECORDS

*"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."*

## PUBLICITY

*"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."*

## FEES

*"\* \* \* There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. \* \* \*"*

The following laboratories in California are among those approved by the Council on Medical Education and Hospitals of the American Medical Association:

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Dr. Marion H. Lippman's Laboratory, Butler Building, 135 Stockton Street,  
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## TRUTH ABOUT MEDICINES

(Continued from Page 34)

and depth depend on the number of units included in each lamp. It is claimed that the lamp provides a source of therapeutic artificial sunlight for group irradiation, the ultra-violet content being much richer than that of natural sunlight. National Carbon Company, Inc., Cleveland, Ohio.—*Journal of the American Medical Association*, August 22, 1931, p. 541.

### PROPAGANDA FOR REFORM

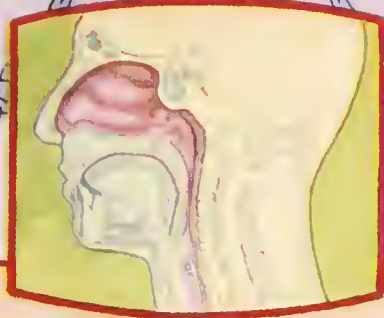
**Use of Cinchophen and Neocinchophen.**—In consideration of reports of untoward effects, it would be well to discontinue the use of cinchophen and to substitute neocinchophen for it. Even though neocinchophen owes its activity to cinchophen, it is so slightly soluble as to be almost tasteless, devoid of irritant action on the stomach, and of remarkably low toxicity. If cinchophen is prescribed it should be under

its pharmacopeial name and not as "Atophan," which is more expensive and is marketed with unwarranted claims. If neocinchophen is wanted it should be prescribed under this name and not under the uninforming designation "Tolysin." In view of the serious though rare poisoning from ordinary doses of cinchophen, the use of this drug should be restricted as much as possible to cases in which other non-narcotic analgetics, such as salicylates, acetylsalicylic acid or amidopyrin, have been tried and failed to give adequate relief, and in which the suffering is sufficiently great to justify the risk.—*Journal of the American Medical Association*, August 8, 1931, p. 409.

**Cultivation of "Common Cold" Virus.**—The growing conviction that "common colds" are not due to any micro-organism thus far included in commercial vaccines, but to an unknown filtrable virus or group of viruses, is strengthened by the currently reported

(Continued on Page 42)





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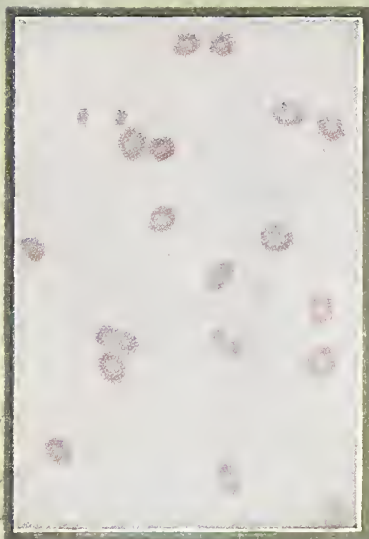
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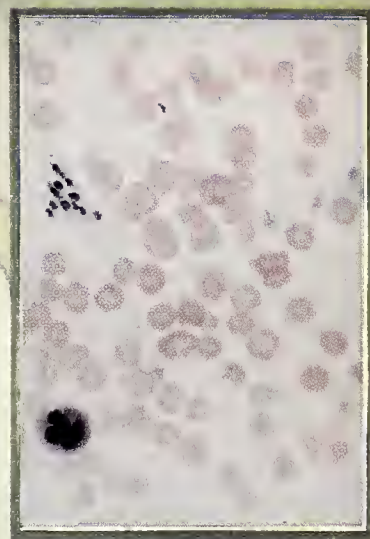


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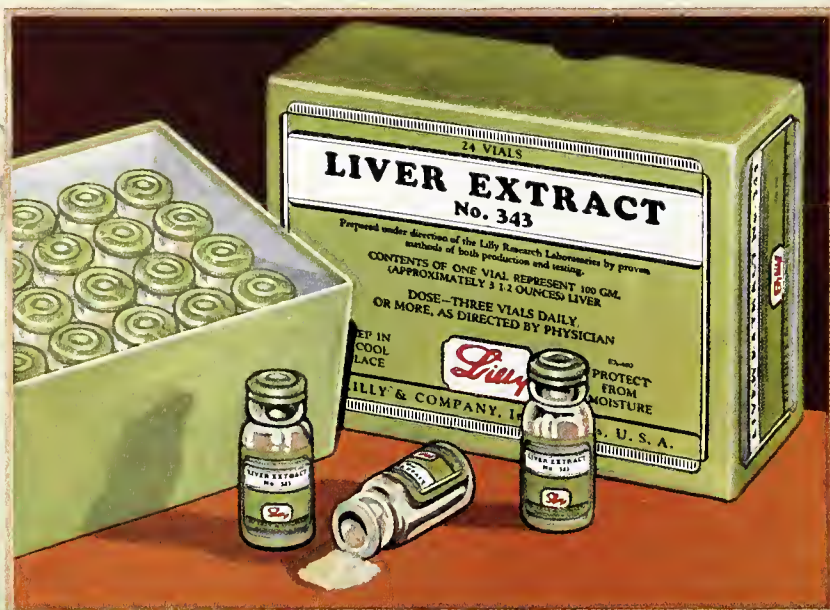
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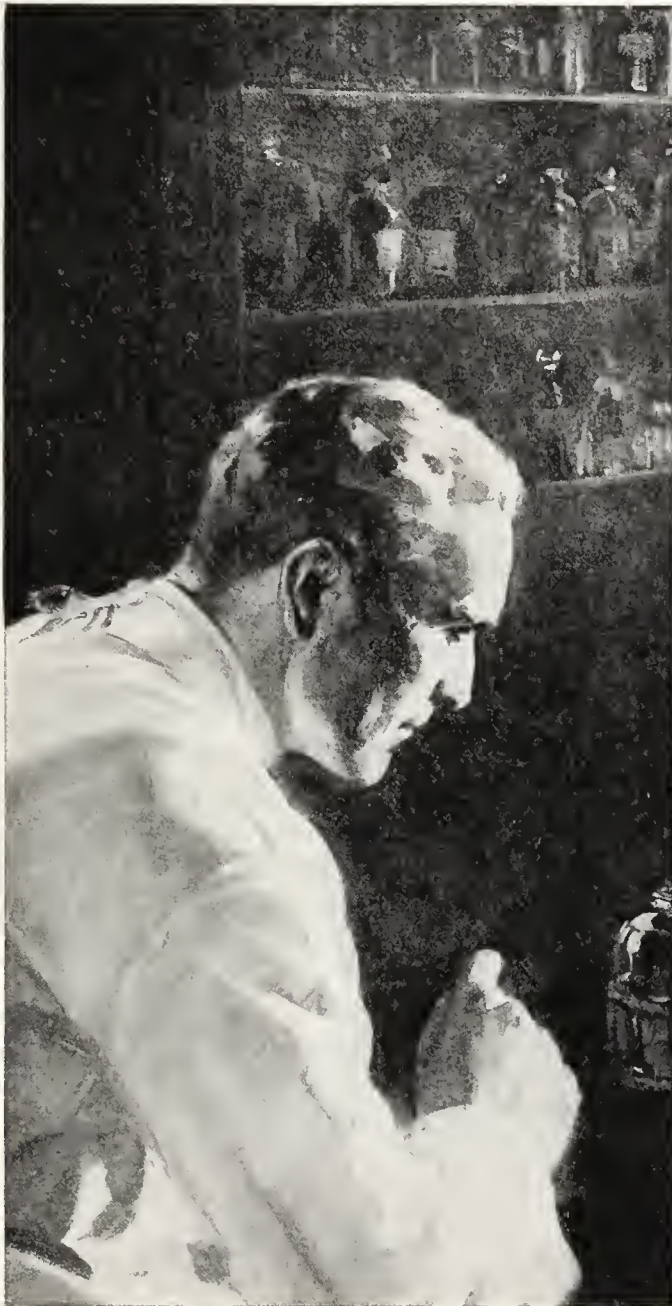
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### TRUTH ABOUT MEDICINES

(Continued from Page 40)

successful cultivation of bacteria-free pathogenic nasal filtrates. The work indicates conclusively that the filtrable agent associated with "common colds" multiplies or is multiplied in the embryonic tissue medium. *Journal of the American Medical Association*, August 15, 1931, p. 466.

**Arsphenamin and Neoarsphenamin.**—Comparisons of the therapeutic value of arsphenamin and neoarsphenamin must take into account the difference of arsenical content, which is one-third higher in the case of arsphenamin than in the case of neoarsphenamin. Even allowing for this difference, it is quite generally conceded that arsphenamin as such is therapeutically the more effective than neoarsphenamin. The evidence for the efficiency of neoarsphenamin is conspicuously small. The most carefully investigated and reported clinical material has been treated with arsphenamin rather than with neoarsphenamin. One of the characteristics of neoarsphenamin which will affect any attempt to estimate its gross clinical value, is the marked variability between different lots of the preparation even from the same manufacturer.—*Journal of the American Medical Association*, August 15, 1931, p. 480.

**The Kaadt Diabetes Treatment.**—Reports are being received that a diabetic treatment is being sent out by the Diabetic Laboratories of Fort Wayne, Indiana, the material as sent to the patient by this concern being signed by C. F. Kaadt, M. D. A quart bottle of the medicine is sold for five dollars and the patient is asked to disregard the testing of urine for sugar. A request sent to Doctor Kaadt by the American Medical Association Bureau of Investigation, requesting that he declare the composition, did not

bring this information. Instead it appeared by the reply that while Doctor Kaadt is willing to let laymen infer that he has a cure for diabetes and sells this remedy on the mail-order plan, telling diabetics that when using it, it is unnecessary for them to use insulin or diet, he is, as yet, unwilling to give the medical profession any information on the subject. This, in spite of the fact that he admits that he has used his remedy for nine years and that he has never failed to produce a cure.—*Journal of the American Medical Association*, August 15, 1931, p. 479.

**More Misbranded Nostrums.**—The following products have been the subject of prosecution by the Food and Drug Administration of the United States Department of Agriculture, which enforces the Federal Food and Drugs Act: Walker's Old Indian Fever Tonic, Walker's Dead Shot Colic Remedy, Walker's Indian Liver and Kidney Tonic, and Walker's Pain-I-Cure (Cox and Simpkins): the first consisting essentially of Epsom salt, quinin sulphate, iron (ferric) chlorid, alcohol, and water; the second containing wood alcohol 7.4 per cent, ethyl alcohol, chloroform, and sassafras oil; the third consisting essentially of Epsom salt, quinin sulphate and iron (ferric) chlorid; and the last consisting essentially of chloroform, alcohol, and oil of sassafras. Barkin's Laxative Cold Tablets (Thomas F. Burch & Co., Inc.), containing acetanilid, caffeine, red pepper, and podophyllin. Watkin's Cold Tablets (J. R. Watkins Company), consisting essentially of acetanilid, cinchona alkaloid, resinous material, and starch. F E I Solution (F E I Corporation), consisting essentially of boric acid, glycerin, a small amount of copper sulphate (blue vitriol), alcohol and water, flavored with oil of cassia. Life for Blood and Nerves (Standard Drug Company), essentially extracts of plant drugs, including a laxative, in about 13 per cent of alcohol and water.



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Druggists' Syndicate), consisting essentially of Glauber's salt, baking soda, sodium phosphate, table salt, citric acid, and a small amount of a lithium compound. Bal-Sa-Me-A (Balsamea Laboratories, Inc.), consisting essentially of extracts of plant drugs, including rhubarb and leptotaenia, a trace of chloroform, alcohol, sugar, and water.—*Journal of the American Medical Association*, April 11, 1931, p. 1250.

**Eksip.**—For some years, one Matthew Richartz of New York City has been swindling diabetics through the sale of a product called Eksip, advertised under the claim that it was unnecessary to diet if one would take Eksip. This product was dealt with in *The Journal*, April 1, 1922, at which time it was shown that Eksip consisted essentially of magnesium carbonate and starch. In February 1931, a fraud order was issued against Matthew Richartz, Inc., and its officers

(Continued on Page 47)



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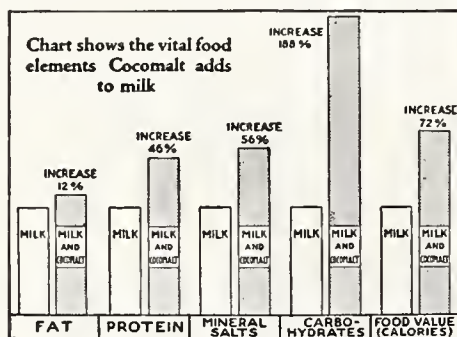
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## TRUTH ABOUT MEDICINES

(Continued from Page 43)

and agents as such, and this swindle has been debarred from the United States mails. The analysis of Eksip, made for the postal authorities by government chemists, verified the analysis that had been made in the American Medical Association Chemical Laboratory four or five years previously, namely, that the stuff was, essentially, magnesium carbonate, talc, and starch. The memorandum of the solicitor for the Post Office Department brought out that Eksip consists of some utterly worthless and innocuous tablets sold as a cure for one of the most serious diseases known to medical science—diabetes—and under the claim that those purchasing them do not need to diet, but, in effect, can eat anything they want, and that they were the “discovery” of a noted European

specialist, who in fact never existed.—*Journal of the American Medical Association*, April 25, 1931, p. 1425.

**Medical Economics and Medical Business.**—For some time physicians have been receiving regularly and complimentary a publication known as “Medical Economics—The Business Magazine of the Medical Profession.” The contents of this periodical are devoted largely to the problem of making money out of medical practice. It is apparently little, if at all, concerned with medical ethics or medical ideals. The vast majority of its space is devoted to the advertisements of products of many manufacturers whose preparations could not possibly be passed by the Council on Pharmacy and Chemistry. Even those manufacturers who coöperate largely with the Council, find in this alleged medical publication an outlet for the announcements of their products that the Council will not accept.—*Journal of the American Medical Association*, April 25, 1931, p. 1404.

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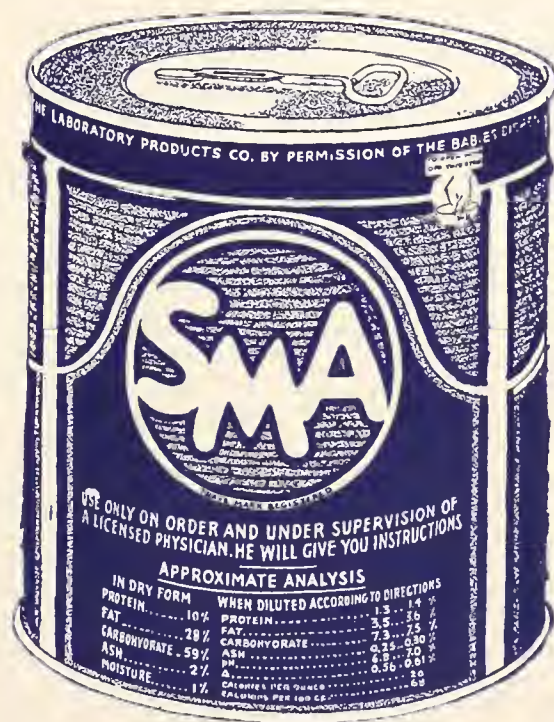
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NUMBER 5

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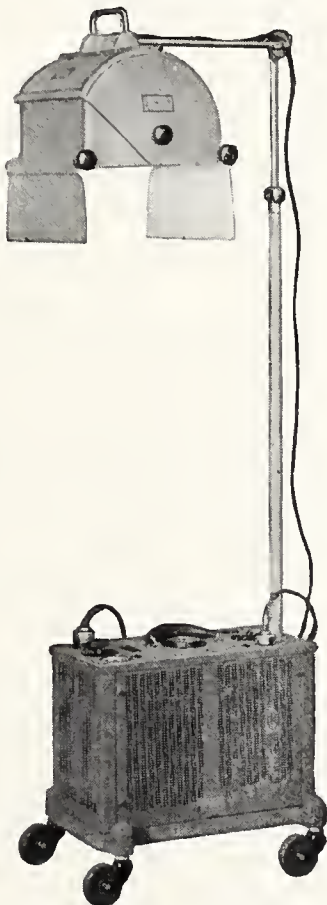




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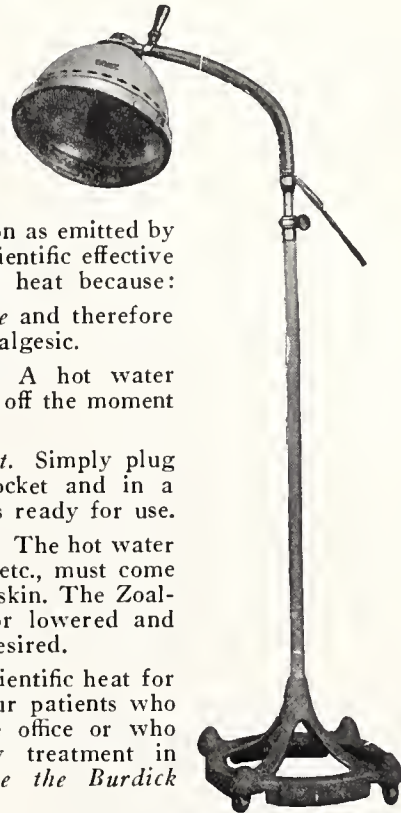
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\* Each year the California Medical Association offers two prizes of One Hundred and Fifty Dollars each, with certificates of award, for the two best papers on clinical and research subjects. Full information concerning the conditions laid down in these competitions may be had by addressing the Association Secretary.

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Director, Giles S. Porter, Los Angeles.

**Board of Medical Examiners of the State of California**  
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Los Angeles, 812 Associated Realty Building  
510 West Sixth Street

Sacramento, 420 State Office Building  
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**Southern California Medical Association**  
President, Fred B. Clarke, 1006 Pacific Southwest Building, Long Beach.  
Secretary, Carl R. Howson, 711 Merritt Bldg., 307 W. Eighth Street, Los Angeles.

**California Northern District Medical Society**  
President, George H. Sanderson, 809 Medical-Dental Building, Stockton.

Secretary, D. Schuyler Pulford, Woodland Clinic, Woodland.

## Better Health Foundation

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**Beriberi in Newfoundland.**—More than six hundred persons on the south shore of Newfoundland have been affected by beriberi this season. The outbreak has been attributed to an exclusive diet of white bread. It has been pointed out that the Newfoundland fishermen have a dislike for anything but the whitest of white flour. Whole wheat or brown bread they refuse to use. When the fishery fails, as it did last year on the southern coast, white bread is practically their sole fare.

The present outbreak is by no means the first appearance of the disease on the island. It was one of the complaints with which the Grenfell Hospital found considerable difficulty in coping, finally succeeding after a long campaign of instruction in dieting. Of some 1300 persons affected last April, no less than 130 adults were partially or totally incapacitated.

In the present case the Newfoundland Board of Health, in addition to supplying food to the destitute that will help to vary the diet, has issued a bulletin dealing with the symptoms of beriberi and urging the use of whole wheat flour and as much green food as possible.—*Canadian Medical Association Journal*, September, 1931.



## BOOK REVIEWS

List of Books Received

## BOOKS RECEIVED

**Simple Lessons in Human Anatomy.** By B. C. H. Harvey, M. D., Professor of Anatomy, University of Chicago. Cloth. Pp. 434, illustrated. Price, \$2. Chicago: American Medical Association, 1931.

**Surgical Pathology of the Genito-Urinary Organs.** By Arthur E. Hertzler, M. D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, Professor of Surgery, University of Kansas. Cloth. Pp. 286, with 222 illustrations. Price, \$5. Philadelphia: J. B. Lippincott Company, 1931.

**Transactions of the Forty-First Annual Meeting of the Medical Society of Hawaii.** The Hawaii Territorial Medical Association. Held at Wailuku, Maui, May 8 and 9, 1931. Paper. Pp. 249.

**United States Naval Medical Bulletin.** Published for the Information of Medical Department of the Navy. Volume XXIX, October 1931, Number 4. Issued by the Bureau of Medicine and Surgery, Navy Department, Division of Publications. Edited by Lieutenant Commander John Harper and Lieutenant Commander Robert P. Parsons, Medical Corps, U. S. Navy. Paper. Price, 25 cents. Washington: United States Government Printing office, 1931.

**Simplified Diabetic Management.** By Joseph T. Beardwood, Jr., A. B., M. D., F. A. C. P., Chief of Diabetic Clinic and Associate Visiting Physician Presbyterian Hospital in Philadelphia, and Herbert T. Kelly, M. D., A. A. C. P., Associate in Diabetic Clinic, Presbyterian Hospital in Philadelphia. Diets prepared with the collaboration of Elise M. Watt, A. B., formerly dietitian Diabetic Clinic Presbyterian Hospital in Philadelphia. Cloth. Pp. 190, illustrated. Price, \$1.50. Philadelphia: J. B. Lippincott Company, 1931.

**Bulletin of the National Research Council.** Number 83. A Compendium of the Statute Law of Coroners and Medical Examiners in the United States. By George H. Weinmann. Issued under the auspices of the Committee on Medico-Legal Problems National Research Council. Paper. Pp. 240. Price, \$3. Washington, D. C.: The National Research Council of the National Academy of Sciences, 1931.

**Gynecology and Urology for Nurses.** By Samuel S. Rosenfeld, M. D., F. A. C. S., Adjunct Obstetrician and Gynecologist Lebanon Hospital, New York City; Lecturer in Obstetrics and Gynecology to Lebanon Hospital School for Nurses; Diplomat of the American Board of Obstetrics and Gynecology. Cloth. Pp. 230, illustrated. Price, \$2 net. New York: William Wood & Company, 1931.

## BOOK REVIEWS

**Physical Diagnosis.** By Warren P. Elmer and W. D. Rose. Pp. 903. Illustrated. St. Louis: The C. V. Mosby Company, 1930.

Doctor Elmer has revised Doctor Rose's earlier work, rearranging and rewriting some of the subject-matter and adding much that is new and helpful. The illustrations have been brought up to date and are a valuable adjunct to the teaching of the subject-matter. The two most noteworthy additions to the book are a new chapter on radiology in physical diagnosis by Sherwood Moore, and a chapter on electrocardiography by Drew Luten, who also wrote the chapter on the diagnosis of abnormalities of the heart beat.

The rearrangement of the subject-matter on the technique of physical examination and normal physical diagnosis is interesting from a teaching point of view. Each diagnostic procedure is completely discussed before the next step is undertaken. The diagnostic procedure is the basis of division of the chapters, not the part of the anatomy or organ examined. For example, inspection of the head, neck, thorax, abdomen, and the whole body is completely discussed, followed by a discussion of the technique of palpation, then of percussion and finally auscultation.

The book is divided into two parts. Part One is concerned with the technique of physical examination and normal physical diagnosis; it is complete in its range and thorough in all detail.

Part Two deals with the physical diagnosis of disease. It was with a sense of keen anticipation that the reviewer studied the chapters on diseases of the respiratory and circulatory systems. It seemed that here was a book on physical diagnosis which would give something

(Continued on Page 14)

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### BOOK REVIEWS

(Continued from Page 11)

different, unique, and actually complete—complete in the technique of physical examination and physical diagnosis of diseased conditions as well as of the normal body. However, practically all of Part Two is concerned with diseases of the thorax only. It was expected that the physical diagnosis of diseased abdominal organs, particularly those of the digestive tract, would be discussed with the same thoroughness and detail as the physical diagnosis of diseases of the thorax. It is hoped that in his next edition Doctor Elmer will add this important chapter to an otherwise complete and excellent book on physical diagnosis.

A. L. C.

**The Renal Lesion in Bright's Disease.** By Thomas Addis and Jean Oliver. Pp. 628. Illustrated. New York: Paul B. Hoeber, Inc. 1931.

For those who desire a rule of thumb for diagnosis and treatment of kidney ailments, this book would be disappointing. But for others who enjoy in medicine an intellectual avocation as well as a vocation it is an unusual treat. The authors are independent thinkers and

tireless, painstaking workers. About half of the monograph is devoted to the histories of a most exceptional series of cases which have been followed through. In their study original quantitative methods have been applied which permit better correlation between clinical and pathological findings. These methods are not quite simple enough for routine general use, but could be carried out in almost any laboratory, and would throw added light on the prognosis of Bright's disease. The introductory chapters deal with historical matter only insofar as is required for the present argument. The concluding chapters give the authors' mature conception of the nature of the renal lesions in Bright's disease, the parts of the picture which are still not clear, and a simpler classification.

E. S. K.

### TRUTH ABOUT MEDICINES

(Abstracts from reports of Council on Pharmacy and Chemistry of the American Medical Association)

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(Continued on Page 18)

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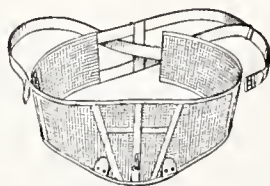


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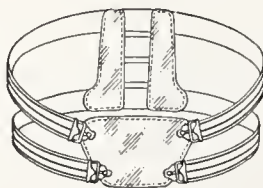


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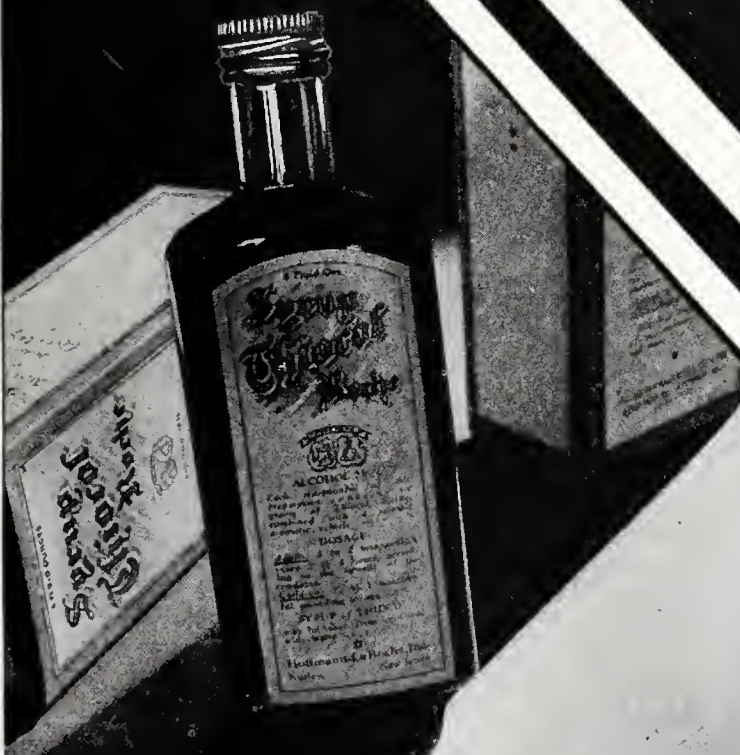
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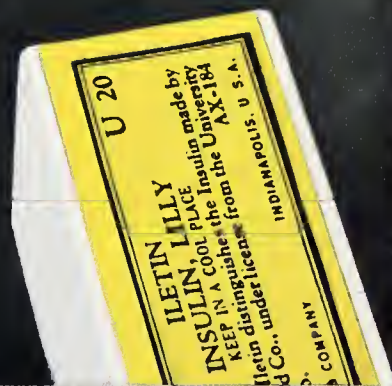
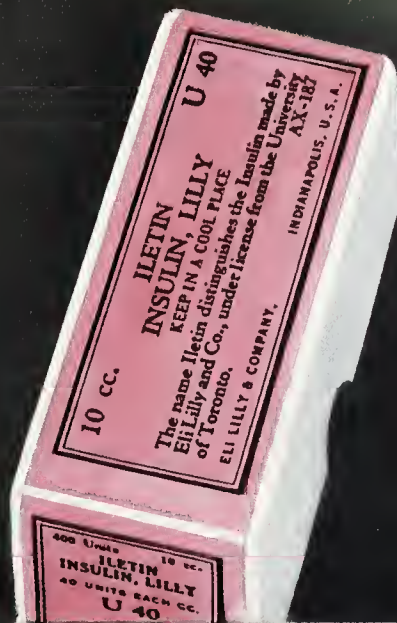
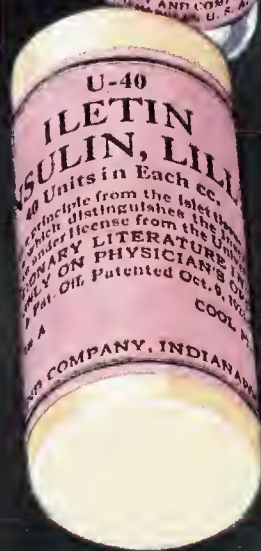
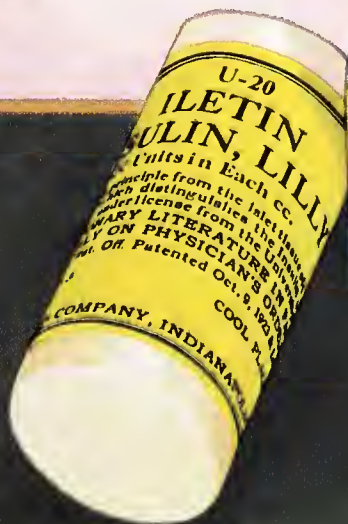
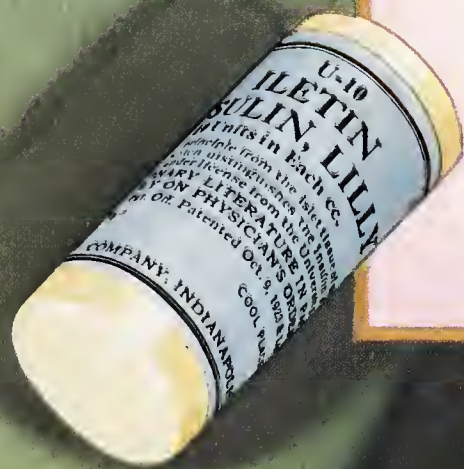
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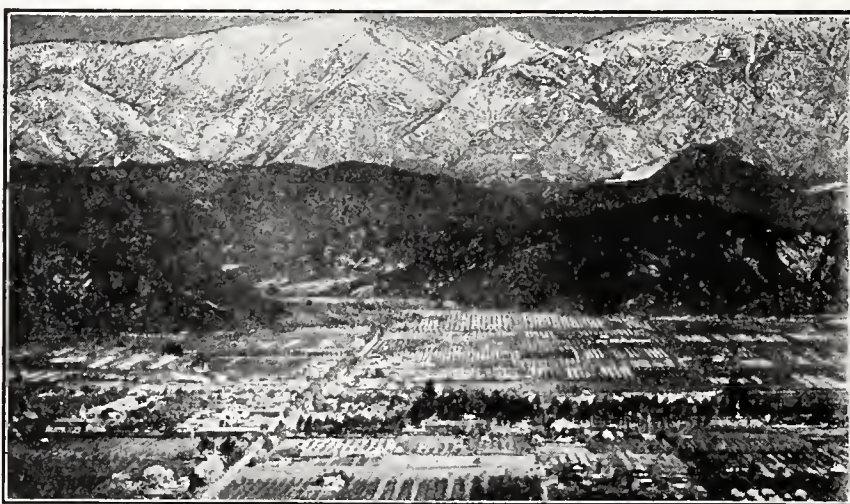
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(Continued from Page 14)

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**Skiodan—Methiodal.**—The sodium salt of mono-iodo-methane-sulphonic acid. Skiodan contains 52 per cent of iodine. It is proposed as a therapeutically indifferent medium for roentgenography, especially for visualization of the urinary tract either by intravenous injection or by direct injection into the renal pelvis through a ureteral catheter. It has also been administered rectally. Winthrop Chemical Co., Inc., New York.

**Gynergen Solution 0.1 Per Cent.**—Each cubic centimeter of solution contains one milligram of gynergen (New and Nonofficial Remedies, 1931, p. 183) and a small excess of tartaric acid. Sandoz Chemical Works, Inc., New York.

**Squibb Chocolate Vitavose.**—A mixture of Squibb's vitavose (New and Nonofficial Remedies, 1931, p. 245) 30 per cent, with cocoa, milk solids, and sucrose. E. R. Squibb & Sons, New York.—*Journal of the American Medical Association*, September 12, 1931, p. 779).

**Scarlet Fever Streptococcus Toxin (Squibb) (New and Nonofficial Remedies, 1931, p. 370).**—This product is also marketed in packages of six 10 cubic centimeter vials of toxin containing, respectively, 500, 2000, 8000, 25,000, 40,000 and 40,000 skin test doses per cubic centimeter. E. R. Squibb & Sons, New York.—*Journal of the American Medical Association*, September 26, 1931, p. 930.

(Continued on Page 20)





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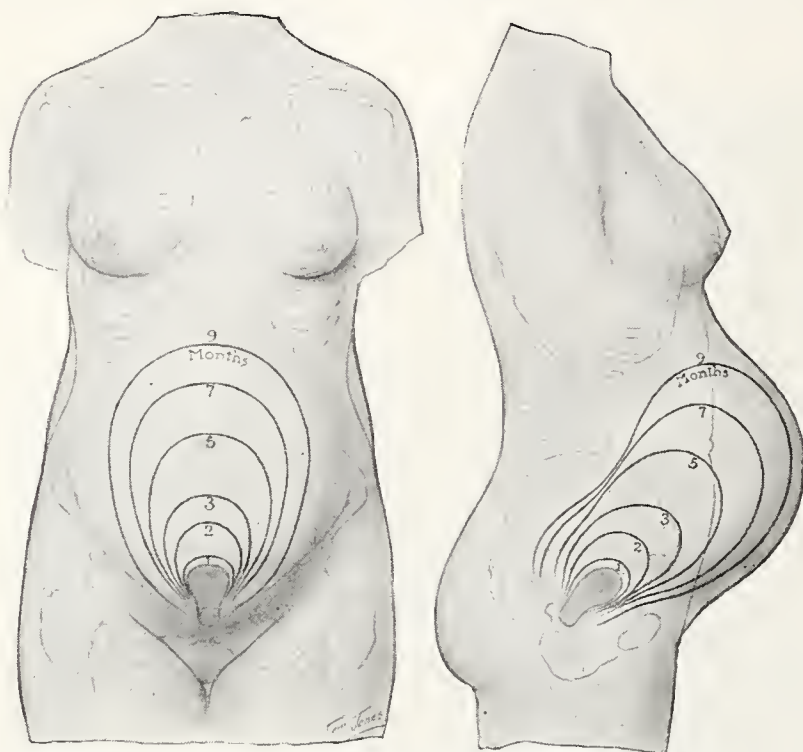
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(Continued from Page 18)  
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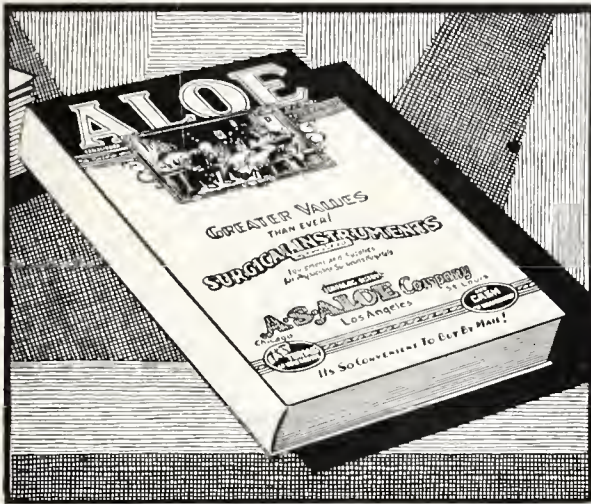
**Bemax (Schieffelin & Company, New York).**—An entire cereal germ product consisting of a mixture of selected rye, barley, and wheat germ, in which rye germ ordinarily predominates. It is claimed to be a palatable and easily digestible food, stabilized to insure retention of vitamin B potency and against deterioration and rancidity and to be one of the richest natural sources of vitamin B. Its use is claimed to restore to the diet vitamin B and other nutritional elements ordinarily lost by the degermination of cereals, and to be a valuable and convenient supplement to a diet suspected of being deficient in vitamin B.

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(Continued on Page 26)



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(Continued from Page 20)

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(Continued on Page 31)



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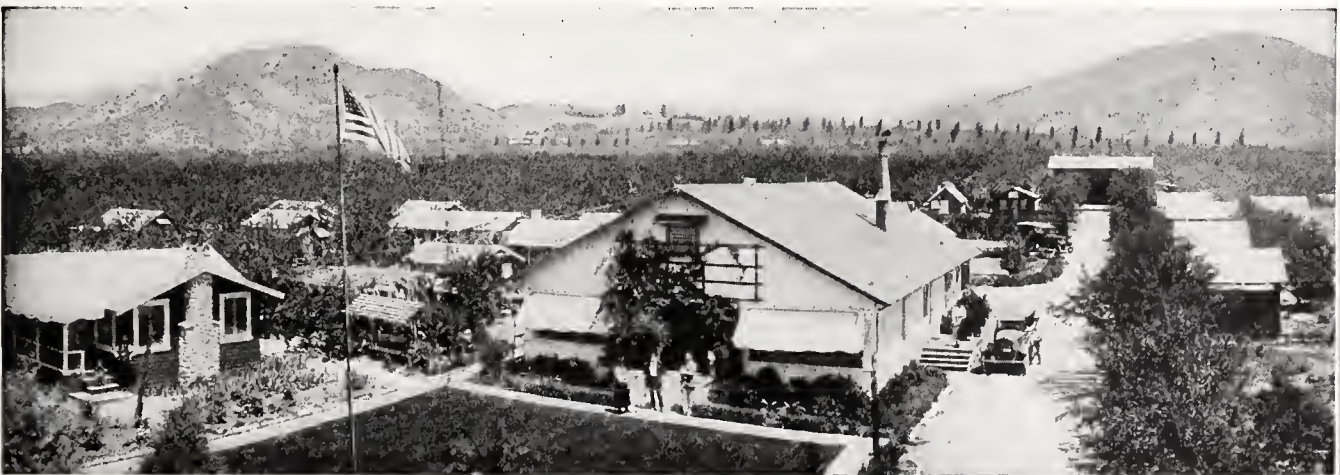
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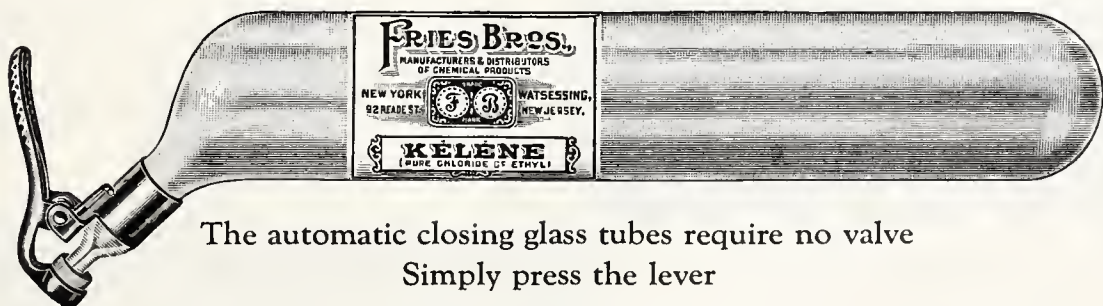
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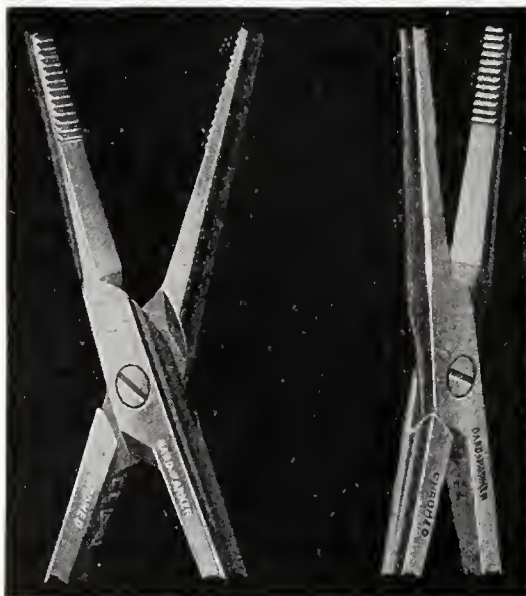
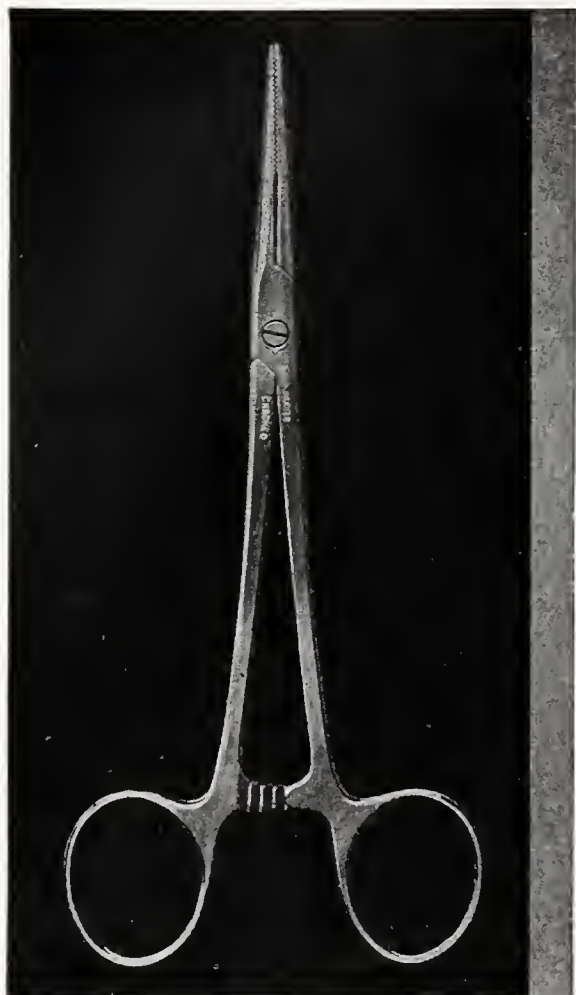


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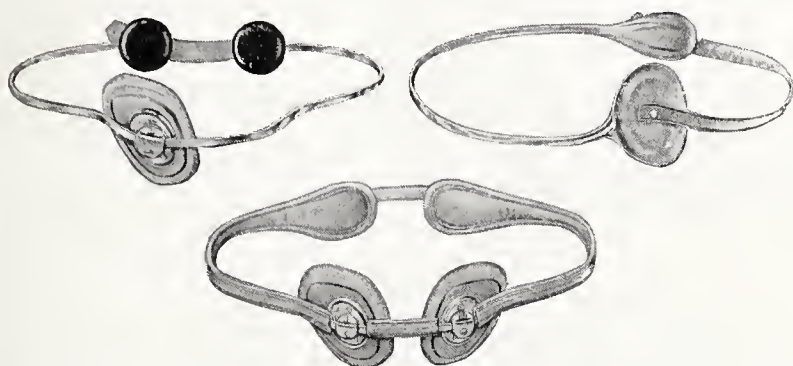
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### TRUTH ABOUT MEDICINES

(Continued from Page 26)

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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXV

NOVEMBER, 1931

No. 5

## FUNDAMENTAL CONCEPTIONS OF PSYCHIATRY NECESSARY TO INTELLIGENT PRACTICE OF MEDICINE\*

By GEORGE G. HUNTER, M. D.  
*Los Angeles*

CUSTOMARY as it is for us to think of the physician as an individual who offers an essentially personal service, neither we nor the public have fully realized that a receptive and coördinated patient or group is just as necessary as the physician for a successful result in health affairs. This is particularly apparent in the acquisition and maintenance of mental health. Its pursuit leads to the very fountain head of human emotions; its goal is the evaluation of the mysterious, often intangible factors which condition mental life. Throughout its processes the undertaking should become progressively coöperative, to the end that a common viewpoint, a consciousness of the goal to be attained and of the rationale of the steps toward it, may break the resistance to education and release both the individual and the group from the blighting effects of ignorance, tradition, and prejudice.

### FACTUAL KNOWLEDGE NECESSARY

In the past, the doctor, lacking factual knowledge and the assurance that goes with the mastery of fundamentals, has frequently maintained his prestige by an unwarranted assumption of finality and learning. This has often given him the appearance of being wiser than he was. Usually the less his actual knowledge the more easily he assumed its possession, doubtless rationalizing this as belonging to the art of medicine. Since the days of wonder-working magic, he has played upon the suggestibility of his patients with astonishing effectiveness, this effect being enhanced by his own intellectual and educational isolation and aloofness. He himself has often been the victim of its allurements and has failed to appreciate his limitations.

But the days of wonder-working magic are gone, with them having vanished the sanctity of the doctor, his isolation, his preëmption of the field of practical psychology. Now both the individual and the group read the same books that he reads, know the same facts of life, and are asking questions that tend to upset his theories and beliefs regarding the mysterious forces that rule over our mental as well as over our physical well-being.

\*Chairman's address, Neuropsychiatry Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

### COÖPERATION ESSENTIAL

Today the minister of health must meet his problems at the level of the average thinker or a little above it. He must approach them with an understanding which invites coöperation, prepared to meet the questions of the "why" and "wherefore" which will assail every project. Society is now acquiring a "health consciousness" about matters of mental hygiene, nervous and mental diseases, that it has previously attained regarding problems of internal medicine and surgery. Although this consciousness is preparing the way for group coöperation, it brings to us the necessity of clarifying our concepts and establishing our theories upon a basis better understood by ourselves and more available to our co-partners. Something besides beliefs and theories which are not accepted even by our own profession must be found before we can take and hold a respected position by the side of our associates in other fields of medicine. A mere knowledge of the existence of a complex interplay between mental processes and physical conditions is not sufficient. An understanding of the mechanisms of operation must be the common knowledge of all physicians and the conclusions must be reasonably well understood by those whom we would serve.

Ever since the advent of the scientific approach the great body of the profession has seemed fearful of recognizing the nervous and psychic forces in the health problem in their proper perspective. The organic concept has so dominated the physician's thinking as to become almost an obsession. It has seemed to demand exclusion from his tenets of faith of whatever remotely suggests the occult or the psychic. The forces which served him so faithfully before the birth of *real* science he has too often spurned as unworthy, forgetful that they were the means by which he had ascended the heights and fearful that, if admitted, they might discredit his fundamental conception of disease. Consequently the sick man, ignorant of the relationship between his bodily state and his affective life, has given ear to the cultist and the commercial quack, who have often displaced the doctor, utilizing with consummate skill and effectiveness the very instruments the doctor has refused to recognize or failed to understand.

The intellectual and affective life of man may be, in the last analysis, but chemistry and physics, but as yet these sciences have given us no adequate understanding of either man's personality or behavior. They have never explained his failure to be satisfactorily synthesized into effective social relationships. Accumulated facts and obser-



vations run far ahead of our capacity to understand and correlate them, but until man is considered in his physical and psychologic entirety, no real understanding of him and his diseases will be possible.

#### HUMAN BEHAVIOR MUST BE STUDIED

It is no doubt true that our specialty of neuro-psychiatry deals fundamentally with human behavior. It is only in part medical and has to do but in a minor degree with pills and prescriptions. It is concerned rather with the integration of all man's faculties and the doctor's first interest is not statistical nor in determination of the degree of variation but in the *cause* of individual failure to function at a normal level. Organized society is studying this problem from a thousand angles and in the face of the many lay movements the doctor can only maintain his leadership by creating better individual mental hygiene and human efficiency and by recognizing and amalgamating all the forces at hand. It is the quality and effectiveness of his leadership toward this goal which shall ultimately determine his position.

Lay leadership tends to deprecate what it does not understand just as the scientist is prone to reject what he is asked to accept on faith or utilize with empiricism. The failure of the lay leader to appreciate highly specialized and technical information shares with the physician's unwillingness to evaluate the humanistic and affective qualities of non-medical persons, the blame for the frequent defeat of a common purpose to promote the general well-being.

It may be impossible at this time to set definite boundary limits for the participants in the health socialization problems, but it is certainly clear that only the psychiatrist or the psychologist trained in the medical sciences can grasp and evaluate the countless physical factors in nervous or mental disorders. It is equally apparent that mere medical training supplies an altogether inadequate preparation for a proper appraisal of the personality and the affective life. No degree of medical skill can entirely supplant the wide experience of human nature and the maturity of judgment which is often possessed by the altruistic *lay* worker in human welfare, unshackled by the *medical birthright* of dogma and tradition. A too tenacious support of mere opinions and a contentiousness over matters incapable of scientific demonstration have retarded the strictly medical approach. It is only recently that the swing away from the structural idea and the advent of psychopathologic research have emboldened the medical man to venture out into the immeasurable realm of the mind in the effort to explain those common phenomena of life so vastly more important than mere physical and vegetative existence, and to link them with the coordinated facts of natural science. This movement has carried the psychiatrist to the point where some of the mental mechanisms seem fairly understood though he has little physiologic or anatomic basis for his explanations of them and must turn to the anatomist and experimentalist to correlate his observations and establish the new outposts.

#### EVALUATION OF METHODS

Largely within the last twenty years, through the youngest of the medical specialties, has come this new venture toward rounding out our knowledge and it has yet to develop a technique and a background out of its own consciousness of need and deficiency. On the one hand has been the alluring impulse to follow the imagination into the realm of make-believe; on the other, the subconscious awareness of the necessity to square it all with the traditionary demands of the scientific attitude.

In this movement there has been a breaking down of recognized limitations. Like all new interests it has attracted a horde of disciples eager to give effect to their ideas and hasten the day when all our social and mental ills will disappear. There is the sociologist with his impulse to give practical application to the theoretical, statistical, and impersonal—the psychologist with his own particular brand of cure—the psychoanalyst, the religionist, the social worker, the mental hygienist. It becomes constantly more difficult to define the boundaries of these many agencies; but it is increasingly apparent that in the churches, the schools, and the infinite social welfare groups the doctor and the medical psychiatrist is finding his leadership threatened as the psychical and social concept of disease becomes more universal. The psychiatrist who permits his medical viewpoint to be dimmed by a too fertile imagination and narrow psychologic approach must accept his responsibility for a waning leadership in the socialization movement and the loss of prestige for neuro-psychiatry as a department of scientific medicine.

There is no doubt that each of these groups has a contribution of value to make. We cannot make ourselves master of all the factors of disease. The process of gathering data, of studying and correlating factual information concerning group and individual life becomes a highly specialized undertaking. The better understanding of normal psychological processes becomes a matter of greater and greater intricacy—too large for one man's scan. We get nowhere by holding ourselves aloof from these groups with a "holier than thou" attitude. Even those affairs best evaluated and understood from the medical viewpoint are in themselves vast and insurmountable. They exact the best and all that the medical man can give; they place him in a vantage point unattainable except by the process through which he himself has come. Nevertheless, unless he can command by the very quality of his leadership, future alignments will find him in a secondary position.

#### BROAD CONCEPTS NEEDED

If the medical approach is to be kept sound and unassailable it is imperative that our concepts be well rounded and that a satisfactory correlation be maintained between the physiological, structural, psychic and emotional. We are all aware of the tremendous impetus given medicine by lifting it out of the morass of superstition and fixing it upon the foundation of science; yet we



have become painfully conscious in recent years of the inadequacy of our information and the lack of finality of our conclusions. It is impossible to understand the problems in the vast domain of the borderline states, their differential diagnosis and evaluation, to say nothing of the frankly psychotic, upon the basis of medical science alone. Known facts concerning the anatomy and physiology of the central nervous system form a poor framework for understanding and an even more unsatisfactory basis for treatment. Fortunately greater progress in the understanding of mental mechanisms is furnishing a supplemental background to a few physicians. However, until more facts concerning anatomical localizations and coördinating and correlating pathways can be established and fundamental, emotional and motivating factors revealed, much of the therapy must remain empirical and guesswork.

The chemistry and physiology of fatigue and the demonstration of synoptic connection is still to be investigated before many of our theories cease to be controversial. For the present, inquiry into causes must give way to mere recognition of conditions and provisions for their management. The horde of suffering humanity whose ills seem not adapted to our particular formula is a commentary upon our failure to meet the situation. They ask for bread and we give them a stone and add insult to injury when they go elsewhere to seek and obtain the only kind of pabulum they are capable of digesting.

#### GREAT INCIDENCE OF PSYCHO-NEUROTICS

We are prone to boast of the prolongation of life, but year by year the misfits and psychoneurotics far outnumber all other forms of ailment. Those evolutionary children, altruism and brotherly love, set at naught the laws of survival and the potentially unfit grow apace, only to fall prey to the increasing pressure of modern life.

Great armies of unfit are all about us; for one requiring physical aid there are ten who do not. They apply to us in vain for help. Are we to continue to shift them from one specialist to another, or permit and encourage them to apply to the cult for relief? The doctor assures them they are physically sound, even may advise that they do not need medical care. True, they may not need such medical care as their physician is prepared to administer. His is the materialist's viewpoint. Trained in the school where only the tangible and the measurable have value he has been too busy becoming dexterous with the tools given him—he has never learned the use nor importance of others. Fear as an etiologic factor in disease has been no part of his education. The concept of the patient as a personality, a composite of forces, affectivities and indefinite qualities apart from the physical is not acceptable to his idea of a medical approach. Only when every other possible explanation is eliminated and both patient and physician in a state of near despair does the physician's resistance break down sufficiently to permit a ray of truth from a psychogenic angle to enter.

#### PERSONAL RESPONSIBILITY OF PHYSICIAN CAN BE OF GREAT AID

Where shall this army of misfits and maladjusted turn for relief? Temperamentally unstable, sufficiently variant from the norm to make the ordinary standard of measurement and judgment quite inadequate, sensitive, doubting and incompetent they require the personal touch, an intimacy of understanding that is quite impossible in mass treatment or by a delegation of authority. In no place is there greater need of that sense of personal responsibility which is the professional inheritance of the physician and nowhere does the factor of moral and personal force count for more than in serving the psychically sick.

#### FAMILY PHYSICIAN AN IMPORTANT FACTOR

And now I come to the point of my remarks. How can the known facts and theories of neuropsychiatry be of greatest service to those who need them? One answer and solution may be found, I believe, in the proper education and viewpoint of the family physician. It has not been my experience and observation that the extreme psychological speculations and theories of the highly intellectual investigator in the field of psychiatry have any great practical value for the relief of the average neuropsychiatric patient. Such leaders are as essential as research workers and investigators in any other department of learning but our limitations and practical considerations make the application of theoretical procedures almost impossible. I believe that the best results will be obtained by the family physician if he can be armed with modern tools, can be trained to the new viewpoint fortified by the background of a reasonable experience.

#### UNIQUE POSITION OF FAMILY PHYSICIAN

The family physician occupies the unique position of doctor, general advisor, friend and confessor and he needs must be at least a little of each of these. He enjoys an intimacy that affords an unparalleled advantage in approach. He knows the family constitution through personal observation. He knows all the family skeletons and the present and past reactions to them. He knows the family morale and the individual capacity for intelligent coöperation. For these reasons it would seem economic and proper for this line of first defense—the family doctor—to be better prepared to deal with the question and to evaluate anew the neuropsychiatric factors of ill health and disease.

Fortunately medical schools and premedical curricula are broadening the preparation for practice; but until a practical working knowledge of psychology and a liberal course in the humanities becomes a "sine qua non" for a doctor's license, the general practitioner will continue to have his patients drift to cults, quacks and faith healers. Among his fellows he has been thrown out of focus by the high degree of specialization and interest too often becomes attached to incidental and concurrent phenomena. The medical man forgets that, as yet, the practice of his profession is



as much an art as a science—that it is the doctor's business as much to understand his patients as to treat their diseases.

There is less of the technician in the general practitioner's approach than in that of any other and generally there exists a far finer sympathy and understanding because of the closeness of the relationship; but the general practitioner should properly evaluate the elements of anxiety and apprehension that play such a large part in the patient-doctor relationship and the psychological effect of that attitude. If he is to make the most of the unique position of family advisor he must understand the fear complex that either initiates or quickly arises out of the sick state. He must be able to penetrate and appraise a complicated psychology that often induces an invalidism unnecessary and avoidable. He should have a fuller appreciation, not only of the frequency of social and psychical inadequacies but of the mechanisms by which they find their expression in common forms of ill health.

Too little attention is given to disposition, slightly abnormal tendencies and reaction types and too little is known by the general practitioner of the potentiality of these variations being elaborated into disease states under the magic of suggestion, lay or medical. More and more is it becoming apparent that affective states operating through the endocrines and the autonomic system are responsible for great numbers of the chronic invalids and for a wide variety of physical signs and symptoms, while the conditions for which the doctor is consulted are merely end results or symptomatic sign posts.

I cannot believe that human life and behavior is so complex that a properly trained general practitioner may not understand this whole relation of man or patient. He need only have certain fundamental conceptions of psychology to pierce the veil of censorship and inhibition which surrounds us all individually and deal rationally with those difficulties of adjustment and adaptation that so often translate themselves into seeming physical disorders. Freudian psychoanalysis may be helpful to a better understanding of some of the mechanisms but it is helpful to the physician much as is a technical knowledge of pharmacology. It is a scientific attainment to understand the structural combination of complex arsenical drugs but of little value to the practitioner in the treatment of central nervous lues. I believe the proportion of patients is small whose troubles can be solved only by a technical psychoanalysis. Friendliness and sympathy on the part of the physician is usually sufficient to break down reserve on the part of the patient, while genial informality encourages confidence and promotes assurance and full confession.

Most of the elements that enter into the common variety of nervous disabilities are so well known to us in miniature in our own lives that their comprehension needs but common sense, an appreciation of the fundamentals of psychology and the medical viewpoint. No one of these ele-

ments can be omitted in the doctor's equipment if he is to succeed in the estimate of himself or his patient; for who better than the family physician, the friend and counselor can instill and maintain that morale without which no method can succeed and with it exhibit a humanness and interest tending to unite him and his patient in faith, hope and understanding.

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## THE NARROW BISPINOUS DIAMETER—ITS INFLUENCE ON OCCIPUT POSTERIOR POSITIONS\*

"HONORABLE MENTION" PAPER IN THE CLINICAL RESEARCH PRIZE COMPETITION OF THE SIXTIETH ANNUAL SESSION OF THE CALIFORNIA MEDICAL ASSOCIATION

By SAMUEL H. HANSON, M. D.  
*Stockton*

IN reviewing the prenatal record of a patient in labor with a persistent occiput posterior position, I casually observed that the bispinous diameter was 9.2 centimeter. This observation raised the question in my mind whether or not the narrow bispinous diameter might be an obstacle to rotation in occiput posterior positions.

### NOTES ON THE LITERATURE

A study of the literature revealed that this subject is a very old one. Exactly a hundred years ago Velpeau<sup>1</sup> wrote that "the causes that occasion the posterior position to occur are little understood. It is better frankly to admit our ignorance than vaguely to refer them to this or that shape of the pelvis." In 1855 James Y. Simpson<sup>2</sup> stated that "in some, any, and in others, apparently every successive portion of the concavity of the floor of the pelvis seems to serve this purpose (rotation), but the spines of the ischia contribute far less than is generally believed."

The subject is seldom brought up in recent literature, and the few opinions expressed are rather vague and contradictory. Thus, Williams, Berkeley and Boney, Polak, Tweedy and Wrench, Peterson, Jaschke and Pankow, Munroe Kerr, Bumm, and others, do not even mention the ischial spines in their textbooks in discussing the etiology of persistent occiput posterior positions.

Lehle<sup>3</sup> assumes that the ischial spines can have little to do with the posterior position since he very seldom found prominent spines associated with this condition. De Lee,<sup>4</sup> however, refers to "poorly developed spines" as one of many possible causative factors.

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\*This paper was submitted under the nom de plume "Baudelocque" and was awarded "honorable mention" in the Clinical Research Prize competition at the sixtieth annual session of the California Medical Association at San Francisco, April 27-30, 1931. The paper was later read before the Section on Obstetrics and Gynecology.



Cragin<sup>5</sup> assigns considerable importance to the ischial spines. In 1916 Cragin stated that in occiput posterior positions there is "poor flexion, the occiput and sinciput reaching the pelvic floor at the same time and rotation is prevented by the spines of the ischia." Even more recently Harper,<sup>6</sup> in speaking of deflexion as an etiological factor, stated that "the larger plane meets increased resistance in rotation, as might be expected. The situation is still further complicated by the fact that the broad diameter must rotate on a level approximating that of the ischial spines. Were the latter but little overprominent, slight success would attend efforts of uterine and pelvic-floor muscles to direct the occiput forward. Many cases of persistent posterior in multiparae are explained on this basis."

From a reference to the literature it is obvious, then, that the question, although over a century old, is still unanswered. In fact, during this entire long period the only contributions to the subject are a few scattered personal opinions and impressions. And yet, the subject is not only of great theoretical interest, but of much practical importance since a knowledge of etiology is a prerequisite to effective prophylaxis and to rational treatment.

#### PELVIMETER MEASUREMENTS

Very recently the situation has been changed by the introduction of a pelvimeter for the accurate measurement of the bispinous diameter.<sup>7</sup> By means of this instrument it is now possible to secure quantitative data in large series of cases. By such measurements it can be demonstrated with what frequency the narrow bispinous diameter and the occiput posterior position are associated. The present study was undertaken with the object of ascertaining by statistical means whether or not any coincidence or relationship exists between these two conditions.

#### CLINICAL DATA

The bispinous diameter was measured in a series of 620 consecutive prenatal cases. The average measurement was found to be 10.5 centimeters. Pelves with a bispinous diameter of 9.5 centimeters or less were rather arbitrarily classed as narrow, and those measuring over 9.5 centimeters as normal or large. According to this classification 107 pelves fall into the first group and 513 into the second group.

Positions were regarded as posterior when the occiput was found behind the transverse of the pelvis at the time of delivery. The occiput posterior was regarded as persistent when no progress occurred after one and one-half hours or more of efficient second-stage pains. Only cases of occiput posterior in which the head was well engaged were included in the series, since the influence of the ischial spines cannot come into play unless the head is deeply engaged.

Ten cases of persistent occiput posterior position, satisfying the above requirements, were encountered in the consecutive series of 620 cases. In every one of these cases the bispinous diameter was 9.5 centimeters or less, averaging 9.3

centimeters. With the exception of a moderate narrowing of the bi-ischial diameter (average of 10.3 centimeters) the other measurements were essentially negative in these pelves. Nine of the patients were delivered by low or low-mid forceps, following manual or instrumental rotation of the head. A craniotomy was done in one case on a dead fetus with a prolapsed cord. The weight of the infants ranged between 3090 grams and 4454 grams with an average of 3658 grams. Eight of the patients were primiparae.

The few cases in which delivery occurred spontaneously with the occiput toward the sacrum are not included in the study because of incomplete records.

Through the kind coöperation of Dr. Alfred Spalding it was possible to follow up a number of cases of occiput posterior delivered on the obstetrical service of Stanford University Medical School. As in the first series, only deeply engaged and truly persistent posteriors were selected for study. The bispinous diameter was measured in seven such cases; in six of these the measurement was 9.5 centimeters or less, and in one case 10.5 centimeters; the average measurement for the group was 9.4 centimeters. Forceps were used in six of the cases after manual or instrumental rotation of the head, and in one case delivery occurred spontaneously following manual rotation. The weight of the infants was 3440 grams to 3830 with an average of 3547 grams. Four of the patients were primiparae.

#### COMMENT

By combining the Stanford with the San Joaquin General Hospital series a total of seventeen cases of persistent occiput posterior is obtained for study. Although the series is small it represents the pathological material of over a thousand labors. Furthermore the paucity of material is to a considerable extent compensated by the very accurate means employed for the measurement of the bispinous diameter, and by the definite and clear-cut criteria used in the selection of the cases of persistent occiput posterior position. Any possible error was thus reduced to a minimum.

The significant finding that emerges from the present study is the circumstance that the bispinous diameter was narrow in sixteen of seventeen cases of persistent occiput posterior position. This fact is even more striking when it is recalled that the narrow bispinous diameter occurs in only one out of six pelves. The logical inference that may be drawn from this constant association of the two conditions, is that the narrow bispinous diameter forms a serious obstacle to rotation and thus contributes to the persistence of the posterior position.

Among the other pelvic abnormalities the funnel pelvis has been considered as a possible factor in the etiology of the persistent posterior position.<sup>8,9</sup> It is true that there is a much greater incidence of the persistent posterior in funnel pelves. However, it seems, that the real cause of the malposition in these pelves is the associated

narrow bispinous diameter rather than the narrow bi-ischial diameter, since the spines being situated superiorly and posteriorly would present an obstacle to the rotation of the occiput before the pubic rami or the ischial tuberosities could exert their influence.

The above observations may have a very practical bearing on treatment. In occiput posteriors associated with a narrow bispinous diameter, intervention would be indicated earlier than under similar circumstances in a normal pelvis. In the former it would be questionable whether the usual policy of conservatism should be followed. If there is good evidence that the occiput is locked between the spines, that is, if the head is of average size or larger, is deflected and deeply engaged within a narrow bispinous diameter, it would be unwise to wait for signs of maternal exhaustion or fetal distress before intervening. Under such circumstances anterior rotation is unlikely to occur, and undue delay would merely result in impaction rendering manual or instrumental rotation difficult and version hazardous, not to mention the unnecessary suffering and the other well-known difficulties and dangers incident to a protracted second stage. These considerations are presented, not to encourage indiscriminate interference or a radical departure from well-established principles, but to point to a finer differentiation and selection of cases which may possibly lead to more rational management of the troublesome occiput posterior positions.

#### SUMMARY

The bispinous diameter was accurately measured in a series of cases. The data obtained show that the persistent occiput posterior position occurs almost invariably in pelvises with a narrow bispinous diameter. The inference drawn from this observation is that the narrow bispinous diameter forms a serious obstacle to the cardinal movement of rotation. The practical bearing of this conclusion is the indication for earlier operative intervention in deeply engaged occiput posteriors occurring in pelvises with a narrow bispinous diameter.

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## CARBON DIOXID ABSORPTION FROM ANESTHETIC MIXTURES\*

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THERE is no evidence that nitrous oxid gas enters into any chemical combination with body tissues when it is inhaled. This is probably true of other anesthetic gases, ethylene, for instance. Nevertheless, gases are habitually wasted in large quantities in order that the carbon dioxid exhaled by anesthetized patients may be eliminated into the atmosphere. In 1916 and following, numerous reports were made from the laboratory of Jackson describing various means of absorbing exhaled carbon dioxid from anesthetic gases and vapors. The first experiment made by Jackson and Mann was described as follows. Two dogs were placed in a gas-tight cabinet filled with twelve gallons of nitrous oxid. The contents of the cabinet were constantly pumped out through a solution of alkali which absorbed the carbon dioxid, then back into the cabinet. Oxygen was constantly liberated into the cabinet in small quantities. By this means the two dogs were kept anesthetized for twenty-four hours with the original twelve gallons of nitrous oxid plus sufficient oxygen to maintain metabolic activity.

Although there is no evidence that ether is chemically affected while producing anesthesia, it does tend to dissolve in the fats of the body to a greater and greater extent as the period of anesthesia is prolonged. There is, therefore, an apparent disappearance of ether from the circulation as it is dissolved out of the blood by lipid tissue. As the ether comes back into the circulation during recovery, it leaves the blood through the alveoli and gradually, over a period of hours or days, is completely eliminated. Just as with the anesthetic gases, ether has been wasted to a large extent in that it had to be expired from an anesthetized patient in order to eliminate the carbon dioxid produced by that patient. The volatilization of ether has long been understood to take place more readily in the presence of a moderate amount of heat. The need for constant elimination of carbon dioxid has, however, made it impossible to satisfactorily warm inspired ether vapor by means of the patient's body heat. Many attempts have been made to warm ether vapor before it is delivered to the patient. Heating devices, however, have always been more or less unsatisfactory and dangerous because of the fire hazard. Heating devices may result in oxidation of ether, producing various impurities which are toxic. A closed system without exhalation valve permits the vaporization of ether in a warm medium due to the accumulation of body heat, but with the accumulation of body heat occurs an extensive unphysiologic accumulation of carbon dioxid, resulting in the necessity for its removal.

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By absorbing the carbon dioxid in soda lime, advantage may be taken of accumulated body heat to warm ether vapor. A reduction in body temperature has long been considered a possible accompaniment of protracted anesthesia. The demonstration, therefore, by Jackson of the feasibility of the removal of carbon dioxid produced by a patient in anesthesia through its absorption in an alkali, offered a means, not only of conserving anesthetic gases and vapor, but also conservation of the usually wasted heat and moisture lost through exhalation. In previous communications, attention has been called to the practicability of applying this principle, demonstrated by Jackson, to everyday use in operating room technique of inhalation anesthesia.

APPLICATION OF JACKSON'S PRINCIPLE TO PRACTICAL ANESTHESIA

Under ordinary conditions, the atmospheric space included in alveoli, bronchi, trachea, larynx, pharynx, mouth, nose and accessory sinuses is considered to constitute the respiratory tract. To apply the principle of Jackson to practical anesthesia, one must enlarge the normal respiratory tract to include a face mask and breathing bag. One should then make such an enlarged respiratory tract air-tight and fill it with anesthetic mixture suitable to a given individual. Such mixture may be one of nitrous oxid and oxygen, ethylene and oxygen, ether and air, or ether and oxygen, or any combination of these or other anesthetic agents. With this enlarged respiratory tract filled with an anesthetic mixture, the concentration of the anesthetic mixture containing oxygen, in the alveoli, and the mixture in the bag will be exactly the same with two exceptions. The alveolar content will carry an excess of carbon dioxid and the bag will contain an excess of oxygen. If such a closed respiratory tract is maintained in position for any length of time, the accumulation of carbon dioxid will increase throughout the system, always being high in the alveoli. Likewise the concentration of oxygen in the alveoli will tend constantly to be depleted and this depletion will affect the whole contents in a short time. No change will take place in the concentration of the anesthetic gas or vapor once equilibrium is established with the blood. In order, then, to make such enlargement of the respiratory tract

filled with anesthetic mixture practicable for continuous maintenance of anesthesia, provision must be made for the removal of carbon dioxid gas, and for the addition of oxygen in sufficient quantities to replace that used from the blood by tissue metabolism. The most satisfactory means for the removal of carbon dioxid from this closed respiratory tract has been found, in our hands, to be the insertion of a quantity of high grade soda lime granules (sodium and calcium hydrate) as part of the system. The oxygen replacement can be best accomplished by constantly flowing into the system a steady stream of oxygen approximating the probable metabolic demand of the individual anesthetized. As anesthesia proceeds, fine adjustments of this flow of oxygen can be made to very closely approximate the amount of oxygen taken out by the blood during each minute of anesthesia. In this manner the blood is constantly supplied with a physiologic quantity of oxygen, and is relieved by the soda lime of its excess carbon dioxid in a physiologic manner without the development of hyperpnea or other disturbances of physiologic activity.

After a description of the technical means necessary for forming an enlarged respiratory tract, the various advantages of such a method of producing anesthesia by inhalation will be discussed.

TECHNIQUE OF ANESTHESIA

No effort will be made to carry the reader through the various experimental trials necessary to come to the realization of a practical equipment. Suffice it to say that attempts were made to apply Jackson's principle by means of closed circle devices through which the anesthetic mixture was made to circulate in one direction either because of one-way valves, or forced to circulate by means of an electric pump. The conclusion was reached that much more physiologic conditions could be maintained by inserting a soda lime canister between the face mask and the breathing bag, being sure that the openings in the soda lime container and bag were of sufficient size to avoid the possibility of interference with free breathing. In the accompanying illustrations are shown various types of mask and laryngeal airway through which air-tight connections can be made with a canister of soda lime granules and

TABLE 1.—Gas Analyses\*

|                                                                                       | CO <sub>2</sub> |       |      | O <sub>2</sub> |       |       |
|---------------------------------------------------------------------------------------|-----------------|-------|------|----------------|-------|-------|
|                                                                                       | Pharynx         | Lips  | Bag  | Pharynx        | Lips  | Bag   |
| No. 7416, after 35 minutes.....                                                       | 4.8%            | ..... | 0.0% | 27.2%          | ..... | 38.0% |
| No. 7891, gas-oxygen after 60 minutes.....                                            | 6.4%            | 4.2%  | 0.2% | 9.8%           | 12.3% | 22.4% |
| No. 9690, after 20 minutes systolic 155 and hyperpnea due to failing soda lime.....   | .....           | ..... | 9.6% | .....          | ..... | ..... |
| No. 9690. Same case 30 minutes later with fresh soda lime. Systolic 105. No hyperpnea | 3.5%            | 2.9%  | 0.2% | 8.3%           | ..... | 23.2% |

\* Gas analyses showing concentration of carbon dioxid and oxygen in various portions of the enlarged respiratory tract during anesthesia with absorption technique.

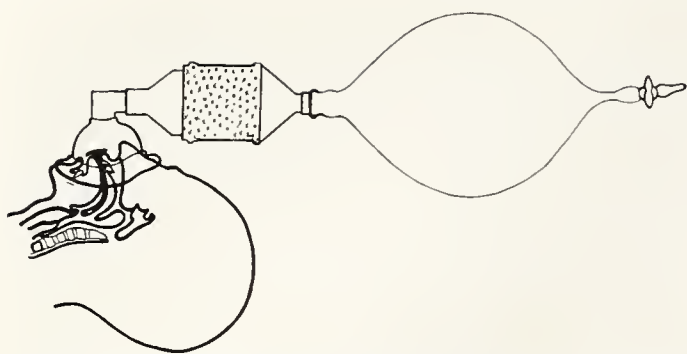


Fig. 1.—Diagrammatic sketch of enlargement of respiratory tract, consisting of pharyngeal airway, face mask, soda lime canister, and breathing bag.

breathing bag. It will be noted that in each one of these masks or airways there is provided an inlet nipple for the addition of a constant flow of oxygen as well as to make provision for an increase of anesthetic mixture to fill the enlarged respiratory tract either in the beginning of anesthesia or when a change is being made from one agent to another. The inlet serves its purpose best when situated proximal to the canister of soda lime rather than when connected with the breathing bag. This improvement in the technique was suggested by Guedel.

Whatever mask is used, it must be one capable of at least approximating an absolutely air-tight contact. The canister connects to the mask and to the breathing bag by means of metal slip joints. The cylindrical canister, measuring 8 by 12 centimeters, contains five hundred grams of high-grade soda lime granules 4 to 8 mesh, sold under the name "Wilson Soda Lime." There are many cheaper grades of soda lime available, and many other sized granules, but we have seen no preparation of soda lime as safe or satisfactory as the 4 to 8 mesh Wilson Soda Lime. If other sized granules are to be used, a modification would necessarily have to be made in shape and size of the canister. The total weight of canister and granules is nine hundred grams. The breathing bag found most convenient has been one of seven to ten liters capacity, light weight rubber. Smaller bags are usable, but less convenient. The substitution of a spirometer for the breathing bag has been made with considerable satisfaction, and will be the subject of another communication. It will be noted that no mention is made of an exhalation valve. There is none. When it is desired to empty the system, the mask is raised from the face during exhalation. All joints and connections of the apparatus, including contact of mask with the face, must be absolutely air-tight insofar as this is possible. As in all other inhalation anesthesia, care must be taken to insure an absolutely free airway to and from the deeper portions of the respiratory tract. The use of artificial pharyngeal airways or laryngeal airways (endotracheal) has been found convenient and physiologically beneficial. These pharyngeal and laryngeal airways will be seen in the accompanying illustrations, and are, we believe, self-explanatory. The gas control apparatus is that in ordinary use, with

one exception, although it may be made much simpler. Means must be afforded for a finer measured constant flow of oxygen, capable of adjustment to slight variations. The quantities usually used of constant oxygen flow vary from one hundred to one thousand cubic centimeters per minute, the average being two hundred to four hundred. Only occasionally are wider variations in constant use of oxygen found. It will be noted that the masks and airways illustrated will provide varying amounts of dead space between the mouth or nostrils and the soda lime. This variety of masks and airways is provided to afford control of carbon dioxide conservation as well as to suit the requirements of different surgical procedures. A patient coming to the operating room with considerable respiratory depression due to the previous administration of nonvolatile anesthetic agents may require more conservation of carbon dioxide than one who has had no such medication. If further "piling up" of carbon dioxide seems advisable, the slip joints by which the canister of soda lime is held in place provide a means of connecting the mask directly to the bag, thus allowing the complete conservation of expired carbon dioxide over whatever period the anesthetist deems necessary to re-establish physiologic conditions.

#### CONDUCT OF ADMINISTRATION

By the description of an actual case, we can perhaps best explain the manipulation of this apparatus for the production of anesthesia. The soda lime canister is first taken in the hand and the lips placed in an air-tight manner in contact with one end, the other end being closed by the palm of the hand. By blowing into the canister

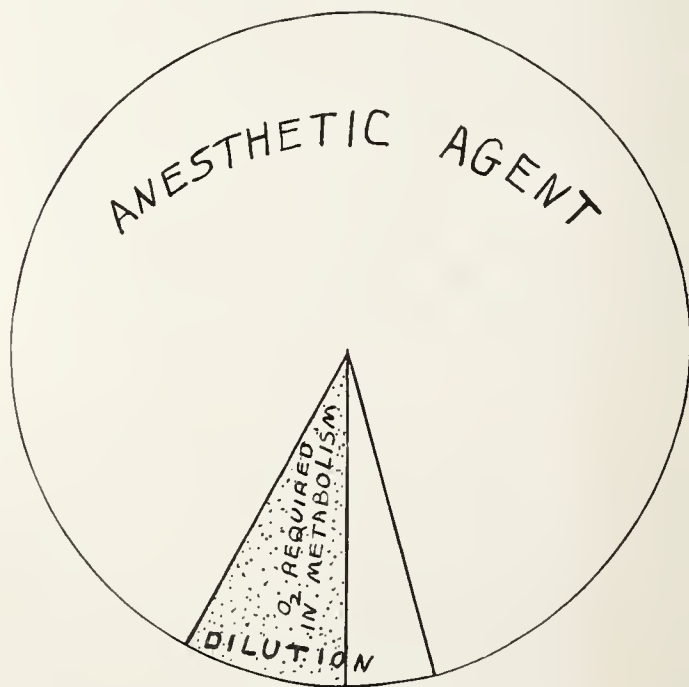


Fig. 2.—Respiratory tract must contain a mixture of anesthetic agent diluted sufficiently to suit each individual patient. Oxygen may serve as diluent. Percentage dilution varies widely for different patients with the same agent. Oxygen required for metabolism varies widely for each patient, but is apt to be nearly a fixed amount per minute for a given patient whatever the agent. This "metabolic" oxygen should be added by constant flow throughout anesthesia.



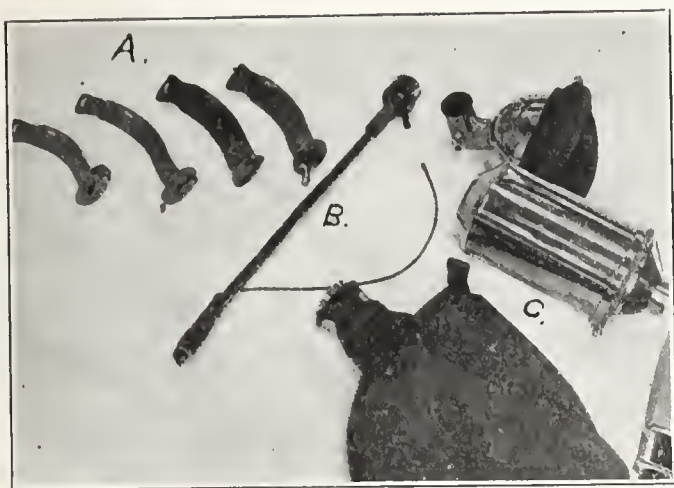


Fig. 3.—A. Variety of pharyngeal airways. B. Endotracheal airway with inflatable cuff to insure air-tight contact with tracheal mucosa. C. Mask, canister of soda lime, and breathing bag with slip-joint connections.

until considerable pressure has developed, and with the sudden release of the pressure when the hand is removed, any possible dust contained in the soda lime will be forced out. This process may be repeated if necessary. The canister is then placed on the anesthetist's table. The mask with a well-inflated face cushion is next connected to the inlet tubing from the gas apparatus. The breathing bag is connected directly to the mask by means of the slip joint, using a twisting motion always in connecting and disconnecting metal slip joints. A rapid flow of nitrous oxid and oxygen is started into the mask. The proportions of nitrous oxid and oxygen are usually those which the anesthetist presumes will approximate an anesthetic mixture for this particular patient. The mask is brought near enough to the anesthetist's face to assure him that no mistake has been made in connecting his gas tanks, and the mask is placed over the patient's face. It need not be held exceedingly tight at first until anesthesia has developed. As soon as unconsciousness appears, the elastic retaining device shown in the illustration is brought into place. This aids somewhat in relieving the muscles of the anesthetist's left forearm which would otherwise be kept at constant tension to maintain an air-tight contact. Nitrous oxid need be left running only so long as is necessary to fill the breathing bag. At the same time, the rapid flow of oxygen is discontinued and a

flow which is thought to approximate the metabolic need of the particular individual (perhaps two or three hundred cubic centimeters per minute) is maintained. If ethylene is to be used, a replacement of the nitrous oxid with this gas is made as soon as unconsciousness has supervened. If nitrous oxid only is to be used, a fresh supply should replace the first bagful soon after unconsciousness is present. The first bagful is emptied by pressing on the bag and raising the mask slightly from the face during expiration. This replacement is necessary in order to eliminate as much as possible the residual nitrogen contained in the blood and respiratory tract before induction. Several replacements of the original gas in the bag will prove beneficial for this reason. Always remember that when replacement is performed, excess oxygen over that constantly running into the mask will probably be necessary to dilute the bag contents to a proper anesthetic mixture. At a convenient time soon after anesthesia develops, a pharyngeal airway should be slipped in place at the slightest evidence of respiratory obstruction. This is accomplished by tilting the mask upward from the chin with contact at the nose as fulcrum. A rapid flow of anesthetic gas should be started just previous to raising the mask in order to prevent air entering the system.

One should always remember that oxygen serves two purposes in anesthesia. First, it must be present in sufficient quantity to supply the metabolic demands of the patient from minute to minute. It also serves, however, to dilute an anesthetic gas or vapor to a proper degree to maintain good anesthesia. In the case of particularly potent drugs such as acetylene, cyclopropane, or ether and chloroform vapor, a part of the dilution may be accomplished with air or nitrogen, but in the case of nitrous oxid and ethylene, their potency is such that usually a very small amount of oxygen in excess of that necessary to supply metabolic requirements is sufficient dilution to form an anesthetic mixture.

Once sufficient carbon dioxid has accumulated in the respiratory tract, including the mask and bag, to maintain active respiratory effort somewhat in excess of normal, one may insert the soda lime canister. This may be accomplished during the expiratory phase by pinching off the bag full



Fig. 4.—Canister of soda lime, open, showing granules.

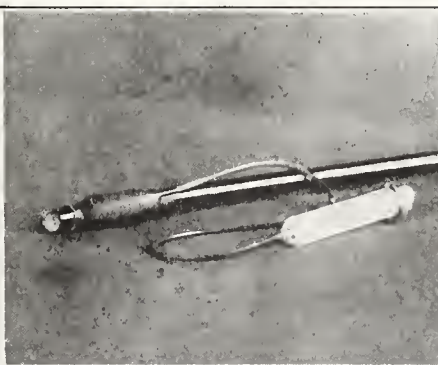


Fig. 5.—Detail of endotracheal airway, showing cuff inflated. Complete deflation is necessary during insertion and removal from trachea.

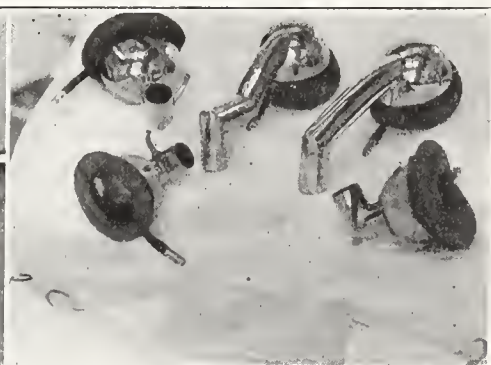


Fig. 6.—Assorted sizes and shapes of face masks. Canvas elastic retainer.



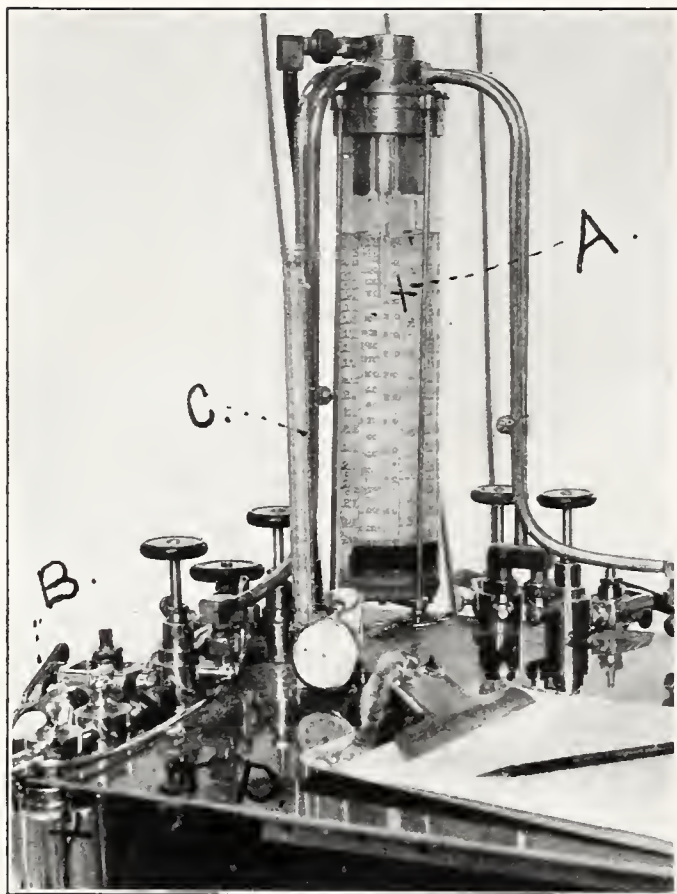


Fig. 7.—Combined anesthetic table and apparatus. A. Flow meters for various gases. Essential that meter for oxygen indicates slight differences in flow between 100 and 600 cubic centimeters per minute. B. Bottle for liquid agents which are volatilized by shunting part or all of oxygen flow through or over the liquid. C. Mercury column. D. Valve allowing compressed air or nitrous oxid to inflate blood pressure cuff.

of gas in the hand which disconnects the slip joint, or if deliberation is required in inserting the canister, a flow of whatever gas is being used may be started previous to making insertion of the canister and until it is in place. Once a proper anesthetic mixture occupies the respiratory tract, mask, bag, and canister, and the proper adjustment of the constant oxygen flow has been made to suit the metabolic needs of the patient, one may continue indefinitely with no further adjustments.

When evidence of too deep anesthesia is manifest by changes in physical signs, a rapid flow of oxygen into the mask through the delivery tube

will allow of a single breath of an oxygen-rich mixture, thus quickly avoiding the development of unpleasant signs of overdose. If a quick return is made to slightly more than the previous flow of oxygen, the large excess of oxygen which the patient receives for one inhalation will be neutralized by the higher concentration in the breathing bag during the next respiratory cycle and so one will avoid the following advent of too light anesthesia. If the physical signs show evidence of too light anesthesia, a sudden puff of anesthetic gas through the inflow tube will correspondingly enrich the anesthetic mixture for one breath and this will again be neutralized in the following respiratory cycle. Thus the second to second control of anesthetic maintenance with gas anesthesia is more easily accomplished than with any other technique. In case of unexpected extreme respiratory depression or arrest, two procedures are available. First, tilting the mask away from the chin, accompanied by hand pressure on the bag, will quickly empty it while a rapid flow of oxygen has been instituted from the apparatus. As soon as there is any accumulation of oxygen in the bag, hand pressure will inflate the lungs. Second, if there is any doubt as to the oxygen supply in the apparatus, which is very often the case when need for chest inflation occurs suddenly during anesthesia, the best procedure is to disconnect the mask from the canister and blow directly into the mask. Such a procedure will avoid the possibility of a frustrated anesthetist losing valuable time in trying to adjust an apparatus which has already failed to deliver oxygen for one reason or another.

The only variation in this technique for use of acetylene, cyclopropane, and other more potent gases is that the original filling of the bag with these gases should be made with a greater flow of oxygen approximating a proper dilution to make a safe anesthetic mixture. The constant flow of oxygen necessary to maintain metabolism with the more potent gases, is similar to that necessary with ethylene or nitrous oxid. No work has yet been published to prove that metabolic rate is affected in different degree by different inhalation agents.

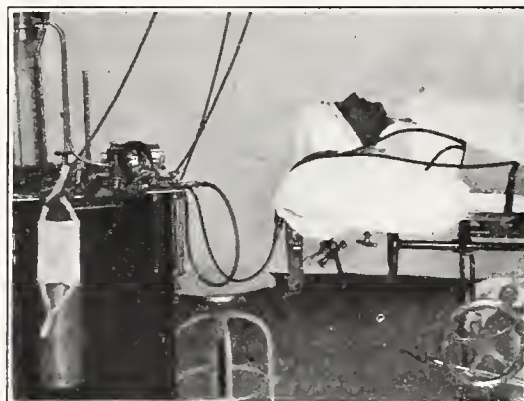


Fig. 8.—Full-sized pillow under patient's head and shoulders.



Fig. 9.—Head rotated to side (usually right) and retainer put in place before induction.

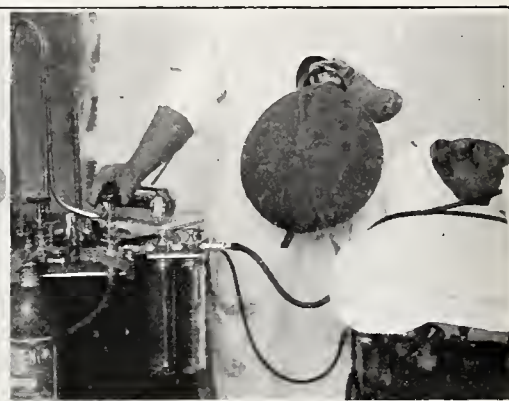


Fig. 10.—Soda lime canister has been freed from dust by blowing and lies ready. Breathing bag is attached directly to mask and filled with probable anesthetic mixture of nitrous oxid and oxygen. Note gas inlet is in mask.





Fig. 11.—Induction, allowing accumulation of expired carbon dioxide. Oxygen, only, flowing from apparatus. Mask held by retainer.

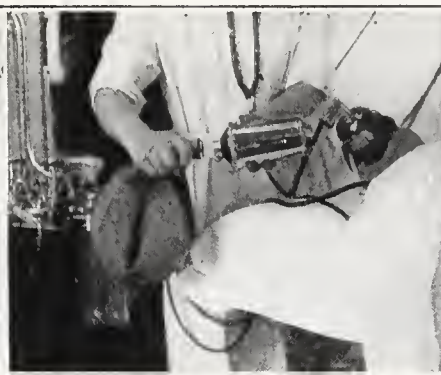


Fig. 12.—Induction complete. Insertion of soda lime during expiratory phase of respiration. Alternative is reestablishment of rapid flow of gas and oxygen from apparatus, allowing leisurely introduction of canister, since delivery tube enters mask.

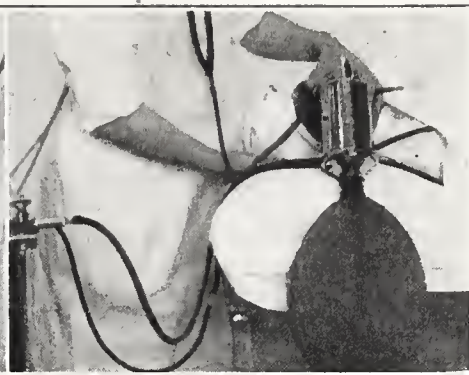


Fig. 13.—Readjustment of head to maintain point of contact of canister with pillow as the fixed point; thus the weight of canister aids in retention of mask.

#### ADDITION OF ETHER

Small quantities of ether may be added to any gaseous mixture in this technique, either for a short time or throughout the anesthesia, by shunting the constant oxygen delivery through a supply of ether. Small quantities of ether will be found to accomplish the same result as much larger quantities of ether added to an open technique. If complete flaccid muscular relaxation is desired, it can be accomplished more satisfactorily with this technique and with less harm than by any other familiar to the author.

The procedure is as follows: Induction is made as described above, by filling the enlarged respiratory tract with a nitrous oxid-oxygen mixture, the soda lime canister being omitted until the required depth is reached. As soon as unconsciousness supervenes, a small amount (two hundred or three hundred cubic centimeters per minute) of carbon dioxide is run into the respiratory tract along with as large a supply of oxygen as is compatible with unconsciousness. As active hyperpnea develops, the oxygen and carbon dioxide flow is shunted through the supply of ether, vaporizing rather large quantities just short of that sufficient to cause irritation of the upper respiratory mucosa. If necessary, a slight flow of nitrous oxid may be added through the ether in addition to the oxygen and carbon dioxide. If the breathing bag becomes distended to some extent, so much the better. When a thoroughly active hyperpnea has developed, the carbon dioxide flow

is cut off, but addition of ether is continued until the third plane of third-stage ether anesthesia is reached. This means passage through the second plane with an eyeball fixed on center (complete extrinsic ocular muscle paralysis) and on through delayed intercostal activity to complete intercostal paralysis which marks the entrance into the third plane. At this point, the soda lime canister is inserted, being careful to pinch off the breathing bag and not waste the accumulated gas and vapor therein. Throughout this procedure as high a content of oxygen has been maintained as possible. Only ether vapor and oxygen may fill the respiratory tract. The function of the nitrous oxid has been served, once unconsciousness has been accomplished and ether anesthesia induced. Slight distension of the bag is beneficial rather than harmful. When the third plane is reached (requiring three to ten minutes) the canister of soda lime is inserted. One may then allow the anesthesia to become slightly less intense, aiming at about the mid-region of the second plane. This depth of anesthesia produces a condition more satisfactory to the surgeon for abdominal work than is that of the third plane. In the third plane, diaphragmatic activity is increased to compensate for lack of thoracic breathing, and the resultant movements may be an embarrassment to the surgeon. Maintenance of this depth may or may not require a small constant addition of ether vapor. Such addition is accomplished, when necessary, by allowing the constant stream of oxygen which is added to maintain metabolic requirement, to

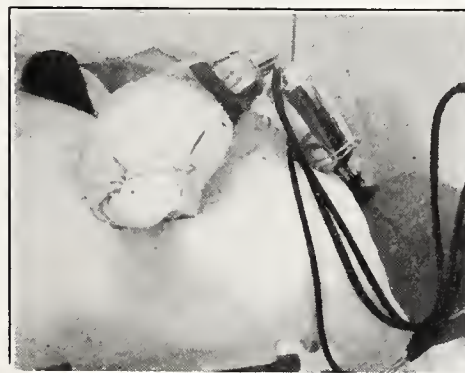


Fig. 14.—View from head of table.

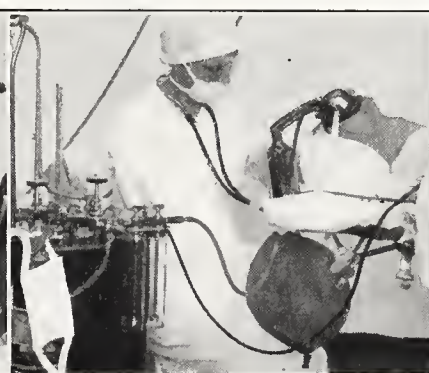


Fig. 15.—Thyroid mask.

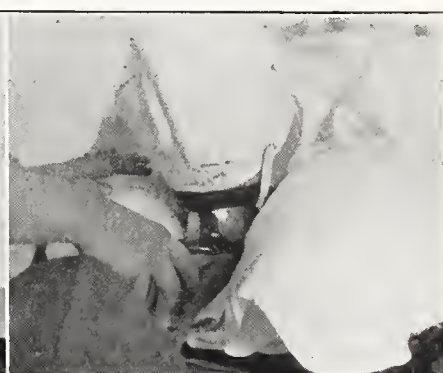


Fig. 16.—Prone position. Head rests in mask.



pass through or over the surface of the ether supply. The total quantity of ether necessary for the accomplishment of an hour's anesthesia with flaccid muscular relaxation need seldom exceed two ounces.

#### MASKS

By the use of various shaped masks, such as those illustrated, the convenience of the anesthetist and surgeon may be suited to the different positions necessary for the accomplishment of many surgical procedures. For the accomplishment of head surgery of various sorts, the application of closed endotracheal airways to the technique as described elsewhere is found most convenient. The method implies a completely controlled and free airway down to and including the larynx. The enlargement of the upper respiratory tract to include mask or airway, soda lime canister and breathing bag, must constitute an entirely leak-proof space to obtain the best satisfaction. The accomplishment of a leak-proof system and a free airway is not difficult in the hands of the experienced anesthetist.

#### COMMENT

*Temperature.*—Some methods of inhalation anesthesia have long been considered likely causes of a reduction in body temperature. The tendency with this technique is toward a rise in body temperature rather than a fall. The warm atmosphere leaving the alveoli during each respiratory cycle passes out through the soda lime, where the carbon dioxide which it contains is left as a carbonate and this same atmosphere again enters the lower respiratory tract during the next respiratory cycle. The constant flow of oxygen in the mask has replaced the oxygen absorbed from it during the previous respiratory cycle. There is a tendency to the production of heat in the mass of soda lime because of the chemical reaction by the carbon dioxide and hydroxide to form carbonate. This added heat proves to be a benefit to the patient. The objection has been raised that too great a heat might develop in the respiratory tract as a result of the chemical reaction. With some grades of soda lime, a damaging concentration of heat might possibly occur, but with the high-grade soda lime above mentioned, we have found it impossible to develop, in the atmosphere inhaled by the patient, a temperature higher than forty degrees centigrade. In the center of the mass of soda lime, a temperature as high as forty-seven degrees has been noted during clinical anesthesia, but the atmosphere is cooled enough as it passes from the soda lime toward the trachea so that even forty-seven degrees never reaches the mucous membrane of the air passages. There can be no fear of damage from excessive heat with this temperature. In this connection, it must be remembered that if one adds pure carbon di-

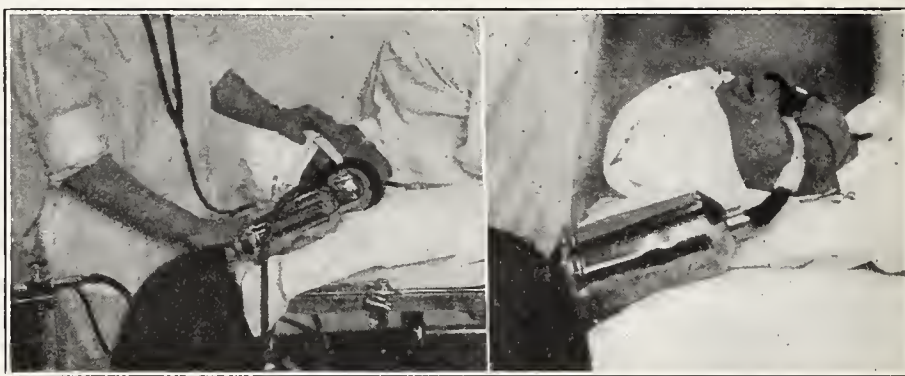


Fig. 17.—Lateral position.

Fig. 18.—Air-tight endotracheal airway. Canister and bag may be carried to either side or down along chest. A towel may be clamped around canister and to pillow or patient's shirt, after patient is in final position for operation.

oxide to the system with the soda lime in place, a much more rapid chemical reaction will take place in the soda lime with corresponding excessive development of heat. We have found it possible to reach a temperature, in the center of the soda lime mass, of one hundred degrees centigrade when pure carbon dioxide was circulated through it. It is therefore not advisable to make a practice of adding carbon dioxide to the enlarged respiratory tract when the soda lime canister is in place. It should be removed if high concentrations of carbon dioxide are to constitute the respiratory atmosphere.

It is our belief that the respirations during inhalation anesthesia conducted by this technique much more nearly resemble those of normal sleep than when similar drugs are inhaled in any other manner. Possibly the maintenance of the inspired atmosphere at body temperature is a factor in accomplishing this result. There is a tendency to an increase in general body temperature as observed with a thermometer in the axilla or in the rectum rather than toward a decrease.

*Moisture.*—Very early during anesthesia conducted by this technique the enlarged respiratory tract is filled with atmosphere completely saturated with moisture. During prolonged anesthesia, the cooling effect of the room atmosphere outside the breathing bag may result in some condensation of moisture in the breathing bag. The quantity of water, however, which is actually lost from the patient's circulation in this manner is very slight even through a long anesthesia. All inhalations consist of a completely saturated atmosphere. Since dehydration is one of the unphysiologic accompaniments of inhalation anesthesia, we believe that the constant inhalation of a saturated atmosphere with a minimum loss of water from the body by exhalation is of decided physiologic benefit. There is another very definite advantage to the administration of anesthetic mixtures containing 100 per cent relative humidity. Ether vapor, and ethylene and acetylene gases in the presence of high relative humidity are less of a hazard from the standpoint of explosion and fire. We therefore feel that the technique is well worth while from this standpoint alone. The usefulness



of these drugs is too great to discard them for no other reason than fear of explosions.

*Control.*—Many anesthetists have felt, on first attempting the technique, that the fine control of oxygen supplied to the patient, and of carbon dioxid elimination, was interfered with as compared with other techniques with which they were familiar. Further experience, however, has convinced them that the matter of fine control rests largely in the hands of the anesthetist and his complete familiarity with whatever technique he chooses to employ. Since Guedel has suggested the inlet source for oxygen being placed between the soda lime canister and the patient, we have experienced no difficulty in regard to quick and minute control of the depth of anesthesia and oxygen supply. Open techniques may attempt to give a graduated variation of rebreathing with the view to individualizing the carbon dioxid output for each patient according to his physiologic requirements at the time of anesthesia. The practical results of such attempts, however, have fallen short of the ideal expected. The ease with which the canister of soda lime may be removed in the technique herein described, thereby allowing an entire accumulation of the expired carbon dioxid for whatever period seems necessary, takes care of gross abnormalities of physiology occurring during administration. The capacity of the usual adult mask is 350 cubic centimeters, and the accumulation of carbon dioxid to the extent involved in this dead space will usually approximate that necessary to maintain normal respiratory minute volume when administration is superimposed upon premedication with sedative drugs. In the case of children and in some unusual circumstances, the use of smaller masks or the connection of pharyngeal and laryngeal airways direct to the soda lime canister improves the character of the breathing, bringing it to a more physiologic level. If one appreciates the two functions of oxygen in anesthesia, one to dilute the anesthetic agent to make of it a proper anesthesia mixture for each patient, and the other that of supplying oxygen for the metabolic activities of the body, we believe that the control of anesthesia and the maintenance of physiologic conditions of respiration is more easily accomplished by this technique than by those in general use.

*Quantity of Agents.*—It will scarcely be appreciated by the uninitiated how small actual quantities of anesthetic gases and oxygen are necessary for the maintenance of anesthesia by this technique. If care is used in avoiding waste, a gallon and a half of nitrous oxid for induction, two gallons of ethylene for maintenance, and one gallon of nitrous oxid during recovery may be made to suffice for an anesthesia of any length whatever. Once the enlarged respiratory tract is filled with a proper anesthetic mixture, and the oxygen adjusted to the metabolic requirements of the patient, anesthesia may be conducted without further addition of ethylene even though the anesthesia may be hours in duration. This fact seems quite incomprehensible to the average an-

esthetist at first thought. It can be accomplished in every case if the anesthetist will take pains to establish at the very beginning of anesthesia an absolutely free airway and an enlarged respiratory tract completely free from leaks. As previously mentioned, two ounces of ether vaporized is sufficient for the maintenance of the most profound relaxation in laparotomy. The advantage here is twofold. First, no ether vapor contaminates the atmosphere inhaled by the surgeon and anesthetist; and second, two ounces can be eliminated in a very short period postoperatively, whereas eight or ten ounces of ether will need a much longer period for elimination. The danger of saturating the atmosphere of the operating room with a highly concentrated mixture of air and ethylene or other explosive gas or vapor is very much reduced. If the anesthetist will take care that his machine is leak-proof, and that the contact of mask and face is tight, no hazard is run by the use of actual cautery in the operating room. Anesthetists have long been embarrassed by the necessity for a choice of agents in a given case on the ground of expense to the patient. The closed technique herein described makes the use of expensive gases no more costly than is an ordinary open ether administration which has often been used as a basis of estimate for the comparative cost of anesthesia. The small total quantity of gases coming in contact with the patient may avoid severe intoxication under certain circumstances. For instance, an eighty-gallon tank of ethylene was once used by the writer to anesthetize twelve different individuals. The tank was afterward found to be contaminated with carbon monoxid in sufficient quantities, so that had the eighty gallons of ethylene been used to anesthetize one patient, as would have been the case by the use of any other technique, sufficient carbon monoxid poisoning would probably have taken place to have resulted in the death of the patient. This accident actually happened to two patients anesthetized by ethylene from the same lot. Finally the total weight and bulk of gases and apparatus necessary for the accomplishment of a morning's work in anesthesia is reduced from a truckload to the contents of a handbag or, at most, two small handbags.

There are certain intangible effects of anesthesia which can only be described as disturbances of physiology. Perspiration, mucous secretion, abnormalities of respiration during anesthesia and similar disturbances following anesthesia with the addition of nausea, vomiting, chills, and many other unpleasant after-effects have all appeared to us to be less frequent than before this technique was instituted. In a word, the sum total results have seemed to be more physiologic.

*Bacterial Contamination.*—It has been suggested that the danger of cross infections was enhanced. The mask is removed from the canister after each anesthesia and thoroughly washed with soap suds and hot water, rinsed in hot water and dried, unless a particularly dangerous case from the standpoint of infection has been handled, when further sterilizing procedures are instituted.



The canister containing soda lime granules may be autoclaved with surgical dressings if necessary. The breathing bag may be washed in alcohol, boiled, or otherwise sterilized. The possibility, however, of bacterial contamination was investigated by Dr. W. D. Stovall, director of the Wisconsin State Laboratory of Hygiene, and visiting bacteriologist at the Wisconsin General Hospital. His reply follows: "Complying with your request to carry out some bacteriological examinations to determine the probability of your anesthesia apparatus acting as an agent for conveying bacteria from one person to another, I have performed two sets of experiments. First, I poured a culture of staphylococcus into the canister containing soda lime. I then drew air, which was first washed through several washings of sterile distilled water, through the soda lime in the canister and through beef infusion glucose broth. This experiment I allowed to run two hours and at the end of that time the cultures were placed in the incubator for a period of a week. In no case did the culture show a growth of any kind. The other experiment was made by blowing air into a bottle containing a suspension of bacillus prodigiosus. The air was blown through this suspension of bacteria so that it agitated it and made a fine spray in the bottle. Through a small glass tube which reached just through the cork of this bottle, I drew air by a process of suction through the soda lime of the canister and then through glucose beef infusion broth. These cultures were also incubated for one week. None of them showed any growth. While this is a limited number of experiments, I consider that the apparatus was submitted to a very severe test and I believe that if the bacteria do not find their way through the canister into the media by these experiments, that there is certainly no possibility of bacteria being transferred from one patient to another by contamination of the lime in the canister." In order to completely cover this situation, Guedel has made it a practice to place mask, canister, and bag in a muslin container, autoclaving the container and contents after each anesthesia. From the standpoint of the "cleanliness appeal" to the patient, we believe this a good practice, although entirely unnecessary for the complete avoidance of cross infections.

*Soda Lime.*—The greatest difficulty which we have personally experienced with this method has been that in connection with the soda lime itself. Any attempt to use inferior grades of soda lime has always resulted in disaster. Smaller sized granules than 4 to 8 mesh are not applicable to the size canister here described. Handling of soda lime containers results in more or less dust formation in the soda lime. It is therefore advisable to buy original containers from the manufacturer with as little handling of the granules as possible before their use. The canister is filled with as little trauma to the granules as possible, the canister being tapped on the side as it is filled so that the granules completely fill the canister before the cover is screwed on. It will be noted that the cover is held in place by a threaded ring so that the whole top of the canister need not be turned,

in forcing the cover down air-tight. After filling, any dust contained in the granules should be blown out either by means of compressed air or more conveniently by blowing into the canister, as already described. This procedure should be repeated before each anesthesia if any doubt exists as to the presence of dust. Soda lime dust is a mildly alkaline powder only slightly irritant to either the skin or mucous membranes of most individuals. There are, however, individuals highly susceptible to weak concentrations of alkali in which the presence of this dust in the conjunctiva, on the skin, or respiratory mucosa might result in irritation. With reasonable care, no dust need ever so contaminate the patient.

*Renewal of Soda Lime.*—The five hundred grams of soda lime contained in the canister is sufficient for the absorption of the expired carbon dioxid of a patient over a period varying from six hours to ten or twelve hours, depending on the size of the patients anesthetized and their metabolic rates. It has been estimated that an individual utilizes five to six cubic centimeters of oxygen per minute for each kilogram body weight. He will produce slightly less than this amount of carbon dioxid each minute. As one becomes more familiar with this technique, the variation both in the production of carbon dioxid and the consumption of oxygen with variations in metabolic rate will become evident. It is convenient to record the number of times that a given canister is used after filling, by means of a check mark on a small rectangle of adhesive plaster stuck to the cover of the canister. One need never fear the presence of saturated soda lime until the canister has been used at least six times. The presence of hyperpnea or other respiratory disturbance not explainable on other grounds may be taken as evidence of depleted absorptive qualities of soda lime. If in addition there is a gradual rise in systolic blood pressure occurring, one may test by expelling the contents of mask and bag by raising the mask and pressing on the bag during expiration, meanwhile allowing fresh gases to flow in. If the hyperpnea disappears and the systolic returns to normal with the display of fresh gases, the soda lime is saturated and should be replaced by a fresh canister.

*Gas Analysis.*—In the accompanying table are shown analyses of the contents of the enlarged respiratory tract from samples taken during clinical anesthesia. Samples have been taken from the region of the glottis in the pharynx, from the mask in front of the face, and from the breathing bag. As would be expected, there is a much higher content of oxygen in the breathing bag than in the mask or pharynx, and the reverse is true of the carbon dioxid concentrations. The samples shown in the table were taken with oxygen delivery made in the distal end of the bag instead of into the mask.

#### SUMMARY

This technique has been used for over ten years and is considered by the author to be the ideal means of controlling inhalation anesthesia. There



are now available at Wisconsin General Hospital records of five thousand cases anesthetized in this manner during the past four years. A similar number have been made by the author elsewhere. Our impression is as suggested above, that the results have been more physiologic than with other methods. The necessity for the use of an endotracheal airway for head work has left something to be desired in short operations of this sort. In operations about the head lasting longer than a half hour, we believe that the introduction of an endotracheal to-and-fro airway is indicated, and results in benefit to the patient. The complete absence of respiratory obstruction serves to protect the patient against circulatory damage from this cause. Short periods of respiratory obstruction may be tolerated, but over long periods, obstruction is damaging to even the best surgical risk. The cost of anesthesia by this technique has been greatly reduced and the absence of anesthetic gases and vapors in the atmosphere of the operating room has been greatly appreciated by the operating team. The fire and explosion hazard is greatly reduced, we believe. In the attempt to instruct others in the use of carbon dioxid absorption, we find them slow to appreciate its advantages in proportion to their familiarity with open techniques. The more experience an individual has had with open techniques the more difficult he will find it to acquire a conception of the two functions of oxygen in anesthesia. The experienced anesthetist in open techniques will also have a tendency to disregard leaks since by means of positive pressure from his apparatus he has been wont to counteract the effects of ill-fitting mask, etc., and has forced the gas outward through the poor contact to prevent the entrance of air. The slightest opening, which would not be considered a leak in any other technique, may make quite impossible the conduct of good anesthesia in the manner here described. There is a tendency to fail to appreciate the slighter degrees of respiratory obstruction. An absolutely free airway is essential to the conduct of physiological anesthesia.

It is believed that a stimulus to a better understanding of the physiology of respiration and circulation will come to the anesthetist who familiarizes himself with carbon dioxid absorption. A large field for physiologic investigation is made available. For instance, we know little of the effect on metabolic rate of the various anesthetic agents. With slight modifications of the above described apparatus, direct recorded readings of oxygen consumption during anesthesia can be made. Many refinements in technique suggest themselves, pregnant with practical advantages. A citation follows: If a flexible container is substituted for the breathing bag herewith illustrated, and its excursions graduated in cubic centimeters, one can record or read directly respiratory excursions and minute volume. By the addition of a mechanical trigger which is tripped when the enlarged respiratory tract begins to lose contents, one can arrange an automatic control of oxygen feed. Many other investigative and practical modifications and applications of the

technique suggest themselves as one becomes familiar with it. The practical use of carbon dioxid absorption as well as its experimental availability for physiologic investigation, rests largely upon one's ability to eliminate leaks and the maintenance of absolutely free unobstructed movement of the atmosphere contained in the enlarged respiratory tract. A knowledge of the physiologic functions of carbon dioxid and oxygen and the ability to control these factors is essential to the anesthetist. Given the physiologic knowledge, he will find the control directly in his hands by the use of the technique above described and its many modifications.

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### PENETRATING WOUNDS OF THE CHEST\*

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**P**ENETRATING wounds of the chest are not uncommon, but their severity varies greatly and the complications which arise from them constantly bring up new problems.

In civil life, trauma to the chest from gunshot and stab wounds and severe crushing wounds of the chest are the injuries seen most commonly. War injuries, with their large defects in the chest wall, retained foreign bodies in the lung or pleural cavity, and severe infection<sup>1</sup> constitute a somewhat different problem which we shall not discuss further in this paper.

#### COMPLICATIONS

Among the complications arising from penetrating wounds of the chest are open pneumothorax, closed pneumothorax, hemothorax, and hemopneumothorax.

*Open Pneumothorax.*—It was believed originally that an open communication between the thoracic cavity and the outside air was compatible with life only as long as that opening was smaller than the glottis. More recently Graham<sup>2</sup> has taken issue with this belief (rightly in our opinion), stating that the higher the individual's vital

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<sup>2</sup> Read before the General Surgery Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

capacity the greater may be the size of the opening he can tolerate in his chest. If an individual's vital capacity is so low that his tidal air is almost equal to his vital capacity, he will be unable to survive even a small opening because already his maximal inspiratory effort is sufficient to inhale only enough air to satisfy the tidal air requirements.

What happens if, as a result of injury, a large opening is made in the chest wall, exposing the pleural cavity to the outside air? The factors responsible for the maintenance of an expanded lung disappear and the lung on the affected side collapses. The movement of this lung now becomes paradoxical: it expands with expiration and collapses with inspiration. These competitive respiratory movements in the lungs cause a to-and-fro flow of air from the bronchi of one lung to the bronchi of the other and result in a greatly diminished oxygen content of the alveolar air and, consequently, of the blood. At the same time an open pneumothorax exerts a most serious effect on the heart through the flapping of the mediastinum, which is drawn over to the sound side in inspiration and forced back again with expiration. It should not be said, however, that all cases of pneumothorax will give the picture just described. If the mediastinum or lung is fixed by adhesions from some previous affection or if the individual has a high vital capacity, a large opening may be tolerated for some time.

*Closed Pneumothorax.*—A closed pneumothorax is not usually so hazardous an affair. It, however, becomes dangerous when there is a valve-like opening connecting the thoracic cavity with the atmospheric air. In this condition the air in the chest on the affected side may reach an extremely high pressure with resultant displacement of the mediastinum to the sound side, decrease in vital capacity, and death from either asphyxia or rupture of a mediastinal structure.

*Hemothorax.*—In almost all penetrating wounds of the chest, hemothorax ensues to a greater or less extent. The size of the hemothorax depends on the freedom of the pleura from adhesions, the extent of the laceration of the lung tissue, and the nearness of the lesion to the hilum. The actual source of the hemorrhage is, in the great majority of cases, the lung itself, and active bleeding from an intercostal vessel is the exception. What appears to be pure, nonclotted blood, has been aspirated from the pleural cavity several days or weeks following a perforating wound of the chest. Because of this fact it has been thought that the blood making up a closed hemothorax does not clot in the pleural cavity. However, it has been shown rather conclusively, we believe, by Elliott and Henry<sup>3</sup> that the blood of a hemothorax clots almost immediately. These investigators in 1916 studied many cases of hemothorax which had resulted from injuries to the chest from gunshot wounds, etc. They found that very early a defibrination of the blood in the pleural cavity took place, which they attributed to the whipping action of the heart, mediastinum,

and diaphragm, and showed at postmortem examination layers of fibrin which actually seemed to have been beaten out of the hemothorax and deposited on the pleural surfaces. These authors considered the secondary clotting that occasionally occurs following aspiration to be caused by an outpouring of serum from pleural irritation with a new content of fibrinogen which produces clotting, as is often seen in ordinary pleural effusion.

*Hemopneumothorax.*—A hemopneumothorax presents problems no different from those seen in a pneumothorax or hemothorax, and need not be further discussed. Diagnoses of these conditions usually are made with the aid of the x-ray, which gives just as much information as a physical examination and requires much less disturbance of the patient. However, if the patient is not acutely ill, both physical examination and x-ray studies may be made.

TREATMENT

*Counteraction of Shock.* There are three cardinal considerations in the treatment of all injuries of the chest, namely, the counteraction of shock, the arrest of bleeding, and the prevention of septic infection. Most patients with chest injuries are in shock when they come into the hospital. For this condition morphin, given in doses until its physiological action is reached, is our most valuable remedy, but its allies, such as heat and intracellular salt solution, occupy a place second only to that drug.

*Arrest of Hemorrhage.*—If the patient is kept at absolute rest, it is rare that any active intervention is required

| TABLE 1.—Summary on Penetrating Wound Cases in San Francisco Hospital in Last Twelve Years |                                 |                    |                      |                                       |                                    |                          |          |                      |           |
|--------------------------------------------------------------------------------------------|---------------------------------|--------------------|----------------------|---------------------------------------|------------------------------------|--------------------------|----------|----------------------|-----------|
| Total No. Cases of Chest Injury                                                            | Total No. of Penetrating Nature | Hemothorax Present | Pneumothorax Present | Combination of Hemo- and Pneumothorax | No. of Cases Treated by Aspiration | Infectious Complications |          | Type of Complication |           |
|                                                                                            |                                 |                    |                      |                                       |                                    | No.                      | Per Cent | Empyema              | Pneumonia |
| 162                                                                                        | 102                             | 73                 | 30                   | 25                                    | 31                                 | 18                       | 17.5     | 13*                  | 6         |

\* One patient had both pneumonia and empyema.



to check the hemorrhage from the lung. The pressure of the blood in the pleural cavity on the lung and the associated collapse of that organ usually are sufficient to stop further hemorrhage. If, however, the main source of the hemorrhage is a wound of an intercostal vessel, ligature of that vessel may be the only means of controlling the loss of blood. If there is a constant escape of blood from a wound in the chest wall in the neighborhood of an artery, the artery must be suspected. Often the differentiation between shock and continued bleeding is difficult. We find the blood pressure to be the only certain means of determining between shock and hemorrhage. The blood pressure readings should be taken every half hour, and if there is a steady dropping, operative interference is urgently needed.

Not infrequently patients suffering from fractures of several ribs will go into shock suddenly. This condition may appear three or four days following injury and the history usually reveals that the patient was moved for x-ray examination or that the chest was restrapped. Careful following of the blood pressure and the hemoglobin percentage soon will reveal that the patient is suffering not from shock but from hemorrhage. When the diagnosis of hemorrhage is made, what to do is still a difficult problem. Often there is no external laceration of tissue and, as several ribs are broken, a rather extensive operative incision is required. In addition, difficulty in finding the spurting intercostal vessel may be experienced if incision is decided upon in such a case. Hemorrhage of this type often can be controlled by passing chromic ligatures around one or several ribs on both sides of the fracture site.

Just recently I saw such a case as I have described, a patient of Dr. Frank Harris', with whose permission I report this case.

The patient, a man aged fifty-two, had been struck by a runaway automobile, receiving fractures of several ribs on the left side as well as a compound fracture of both bones of the left leg. On the day of injury the patient's leg was set in plaster and the fractured ribs were strapped. At that time there was no evidence of fluid in the chest.

The patient's convalescence was rather encouraging, considering the severity of his injuries, but four days after the accident his condition suddenly became critical. His pulse rose rapidly, the blood pressure dropped to eighty, and the red blood count dropped to two million, with a hemoglobin of fifty per cent. X-ray plates taken at the bedside revealed a large amount of fluid in the left chest.

The patient lived only a few hours after the onset of these symptoms. A postmortem examination revealed a large hemothorax with several small puncture wounds in the left lower lobe, and rather wide displacement of the fragments of the fractured ribs. Hemorrhage undoubtedly was the cause of this patient's death and its source was no doubt a ruptured intercostal artery. On the day before the patient's death he had vomited several times and the straining incident to the vomiting might have been a factor in the causation of this late bleeding.

On the other hand, the same history and chain of symptoms occasionally appear from a late hemorrhage from the lung following multiple rib fractures. Recently at the San Francisco Hospital, I saw a patient with several fractured ribs

on the left side. The patient had been in the hospital two days and was making a satisfactory recovery. Suddenly his condition became critical; his pulse rose rapidly to 160, and signs of fluid in the left chest were present for the first time. This patient was treated by aspiration of 400 cubic centimeters of bloody fluid and replacement of the fluid by 600 cubic centimeters of air. He recovered rapidly following this treatment.

Because the procedure is so simple and requires so little time, we believe it is much better in these cases in which the source of the hemorrhage is indefinite, first to try compression of the lung with air or oxygen. If there is no improvement within a short time, the fractured ribs must be exposed and the bleeding area controlled.

The treatment of hemothorax in those patients not requiring immediate operation is not entirely satisfactory. Morrision Davies,<sup>4</sup> an excellent English surgeon, as early as 1912 advocated the aspiration of a hemothorax with replacement by air. The reasons for replacement by air are as follows:

1. Upon the introduction of air when zero pressure is reached, the lung is totally collapsed. This immobilizes the lung and compresses the walls of the wound in the lung, producing mechanical closure.
2. The air prevents adhesions between the lung and the parietal pleura.
3. The compression of gas is elastic and permits normal chest expansion on the unaffected side.

Morelli<sup>5</sup> not only replaces the fluid by air but washes out the pleural

| TABLE 2.—Summary on Mortality Record from Penetrating Chest Wounds |         |                   |                       |                                      |             |                      |          |             |                         |     |          |     |
|--------------------------------------------------------------------|---------|-------------------|-----------------------|--------------------------------------|-------------|----------------------|----------|-------------|-------------------------|-----|----------|-----|
| Total Deaths                                                       |         | Early Deaths      | Causes of Early Death |                                      | Late Deaths | Causes of Late Death |          |             | Uncomplicated Mortality |     |          |     |
| No.                                                                | PerCent | (Within 36 Hours) | Shock Hemorrhage      | Complicating Cord and Heart Injuries | 7           | Pulmonary Infection  |          | Peritonitis | Early                   |     | Late     |     |
|                                                                    |         |                   |                       |                                      |             | No.                  | Per Cent | No.         | Per Cent                | No. | Per Cent |     |
| 17                                                                 | 16.5    | 10                | 7                     | 3                                    | 7           | 5                    | 4.9      | 2           | 7                       | 6.8 | 5        | 4.9 |



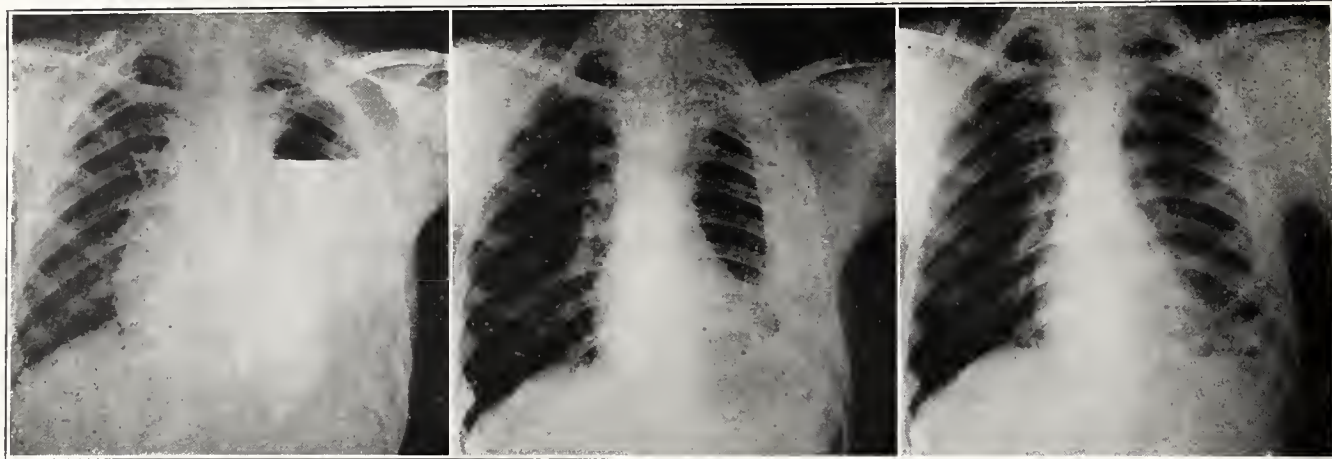


Fig. 1.—A film taken twenty-one days after injury, showing fluid still up to the second rib level, although a total of 2700 cubic centimeters of bloody fluid had been removed by aspiration.

Fig. 2.—Two and a half months after thoracotomy. The film shows the lung gradually coming out, with considerable thickening of the parietal pleura.

Fig. 3.—Seven and a half months after thoracotomy. The lung is now much more expanded and the thickened parietal pleura has been partially absorbed.

cavity with a fibrin-dissolving solution of chloroform following the aspiration of the bloody fluid. Our present treatment is based upon the principles laid down by Davies. The hemothorax is aspirated on the third or fourth day following injury. A one-millimeter needle is introduced in either the seventh space in the mid-axillary line or the ninth space in the posterior axillary line. This needle may have a two-way stop, one end of which is connected with a pneumothorax machine and the other with an aspirator, or two needles may be used. All the fluid is aspirated and replaced with air to make the pressure about zero. If another tapping is required, a negative pressure up to minus eight may be left with safety.

The opinions of surgeons during the Great War differed as to the value of this treatment. Elliott<sup>6</sup> had very few cases of hemothorax that required a second aspiration. Hewer, Pratt, and Mason,<sup>7</sup> on the other hand, concluded that the adhesions following hemothorax were almost the same whether the fluid was aspirated or not. These latter authors were almost tempted to suggest the replacement of aspiration by thoracotomy for the treatment of hemothorax.

In our hands incomplete absorption of the hemothorax after tapping has been much more frequent than with the English surgeons. A patient with a hemothorax which has failed to absorb is ill. He tires easily and often runs a moderate fever. Further aspiration of fluid is impossible. If not operated on these patients will become chronic invalids, but operation gives them immediate and lasting benefit.

An intercostal incision usually is made through the fifth and sixth or sixth and seventh ribs in the mid-axillary line. The pleural cavity is opened, the fluid and spongy fibrinous deposits are removed, and the chest is closed without drainage. A negative pressure of minus twelve usually is left in the thoracic cavity. This helps to bring the lung out to the chest wall.

This incomplete absorption of the heavy fibrinous deposits in the pleural cavity following a hemothorax has been of particular interest to

us, and we have been studying some phases of the problem in dogs and rabbits. Unfortunately these animals have very tolerant pleural cavities. Blood, introduced into their pleural cavities, is absorbed rather rapidly and leaves little trace of adhesions or fibrin deposits. This fact makes the problem somewhat more difficult, as we are especially anxious to produce adhesions and fibrin deposits and then attempt to absorb them by different fibrin-dissolving substances; we are still at work on this problem and hope in the future perhaps to prevent the occurrence of this complication following hemothorax.

The case of a boy, age seventeen, who was stabbed over the left clavicle near its sternal attachment, represents just such a complication (Figs. 1, 2, 3). Physical examination revealed a left hemothorax. The patient was treated with numerous tapings of the chest and replacements by air for about one month. Fluid, however, continued to re-form in the chest cavity and we felt that thoracotomy was indicated. When this operation was performed, heavy, spongy deposits of fibrin were found lying in the costophrenic sinus. These were all removed, and the patient made an uneventful recovery following this operative procedure.

If the hemothorax is suspected of being infected, daily smears and cultures are taken, and if found positive a rib is removed and the proper drainage is instituted. Sterile hemothorax often causes a temperature running as high as 103, and the laboratory has to be relied upon to differentiate an early infected hemothorax from a sterile one.

*Prevention of Infection.*—The third main consideration in treatment, that is to say, the prevention of infection, is the same as in any other part of the body. Contaminated wounds, such as crushing injuries into which dirt has been ground, or the tract of an infected bullet wound, are thoroughly debrided. Coupled with debridement the constant cleansing of the mouth and fauces will do much in preventing sepsis from its most likely sources.



The harmful effects of an open pneumothorax are rectified immediately by the closing of the opening in the chest wall. This is done as soon as possible by the use of rubber dam, vaseline gauze, wet towels, suturing, etc. The closure of an open pneumothorax can change impending death to a normal state within a few minutes.

The closed pneumothorax with a valve-like action of the puncture wound requires only closure of the wound and a needle in the chest on the affected side. The needle is connected with a rubber tube which leads under water in a bottle at the side of the bed and the excess air bubbles out, so that normal pressure is established. We have seen two such cases in children following automobile accidents in which the foregoing procedure was a life-saving one.

Large intra- and extrapleural foreign bodies and extensive rib fractures usually require operative procedures.

A summary of the cases of penetrating wounds of the chest that have occurred in the past twelve years at the San Francisco Hospital is given in Tables 1 and 2. These figures show a mortality percentage well below those quoted by various authors during the war, but somewhat higher than two and three-tenths per cent late mortality of Boland's<sup>8</sup> 341 cases of penetrating wounds of the chest, and the less than two per cent in the 162 cases reported by Allen.<sup>9</sup>

#### CONCLUSIONS

1. Hemorrhage, alterations in intrapleural-pressure, and infection are the main causes of death in penetrating wounds of the chest.

2. The present treatment of hemothorax can be improved but, from our knowledge to date, aspiration with replacement by air or oxygen is a step forward.

3. Alterations in intrapleural pressure can be rectified easily if they are recognized early and the necessary treatment is instituted.

4. In civil practice the late mortality rate is low in penetrating wounds of the chest.

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#### DISCUSSION

FRANK S. DOLLEY, M. D. (727 West Seventh Street, Los Angeles).—In the rapid development of chest surgery during the past few years far too little attention has been devoted to intrathoracic injuries.

A sucking wound of the chest wall or open pneumothorax, if the external opening is of considerable size, may result in death almost immediately. It is lamentable that it is not more generally appreciated that its immediate closure by tight bandage, or even in an emergency by the gauze-covered palm of the hand, brings immediate relief. Closure of these wounds is, of course, essential. If there is extensive injury to the lung beneath this injury it should be repaired, rough scraping edges of broken ribs removed and the opening in the chest wall cleared of torn tissue and closed without drainage. It is seldom wise to drain the pleural cavity since the smooth pleural surfaces are amazingly competent in handling invading bacteria, whereas the presence of a tube acts as a foreign body and empyema more often than not develops. Blood within the pleural cavity should be thoroughly removed before closing.

Tension pneumothorax, where an injury to the lung with chest wall closed allows air to enter between the pleural leaves with inspiration but by valve-like action does not permit its complete release in the succeeding expiration, is thoroughly dangerous, as Doctor Stephens has said, and unless relieved often causes death. If air, after repeated aspiration, rapidly reaccumulates I certainly think the wisest course is to expose the lung through a wide intercostal incision, find the tear in the lung and mend it. The operation is not a shocking one and usually requires but a few minutes. The relief is immediate and absolute. Continuous trocar drainage of the air for several days is very liable to convert the extensive pneumothorax into a pyopneumothorax.

Hemothorax should be aspirated after two to four days. It is very doubtful if its presence has any favorable influence by its pressure in controlling further bleeding. By the same token I do not believe that air replacement is of material aid since lung inflation and deflation occurs whether the lung is compressed or not though its degree varies somewhat. Moreover the blood pressure within the lung is scarcely more than one-sixth of that in the general circulation. Hemorrhage once controlled within it has little tendency to recur. The sooner a collapsed lung is allowed to come in contact with its parietal pleura the quicker the pleural surfaces will resume their normal functions and the less adhesions there will be.

One final word: Approximately 85 per cent of those who suffer injuries of the chest recover with complete rest, sedatives and watchful waiting. We are, therefore, altogether too prone to pursue this course with 100 per cent of the cases, hoping that our particular patient may not be among the unfortunate 15 per cent. Despite the fact that the great majority recover under expectant treatment there is a certain per cent whom we deliberately allow to bleed to death under our very eyes with the hope, that becomes more and more forlorn as the hours pass, that a bleeding vessel may eventually decide to stop this side of exsanguination or that a tension pneumothorax may not really, after all, result in fatal anoxemia. If surgical exploration seems indicated one should not wait until the patient is moribund before



resorting to it. The surgeon is then to blame, not the procedure; but surgery through no fault of its own is, nevertheless, brought into disrepute.

✽

FRED R. FAIRCHILD, M. D. (Woodland Clinic, Woodland).—It is unfortunate that the lesson of the Great War relative to the treatment of penetrating wounds of the chest has not been more generally learned. Such lesions are usually first seen, not by the thoracic surgeon, but by the general practitioner. The great hazard associated with these injuries is immediate rather than remote and on the character of first aid will largely depend the progress, whether satisfactory or otherwise.

Except for the immediate hazard to life due to mechanical disturbances of the mediastinal structures caused by altered atmospheric pressure, a chest wound is not essentially different from a wound in any other part of the body. But this difference, as Doctor Stephens well emphasizes, is a vital one, and if the patient is in shock or dyspneic the demand for attention is immediate. The wound in the chest wall must be closed, by suture if possible, or as an alternative by occlusion with gauze, rubber dam and adhesive, or by any other method which will prevent the in and outrush of air on respiration. In just the proportion that this effect is obtained will the dangerous mediastinal flapping be modified.

The discussor emphasizes the fact that a closed pneumothorax is not usually so hazardous a condition as is an open pneumothorax. In this we concur, but stress the fact that a closed pneumothorax does demand close observation, for the valve-like action of which he speaks is not uncommon and when it does occur the positive pressure in the affected side, if not relieved, becomes so great as to jeopardize life. In the last year and one-half we have seen this complication occur on two occasions. The correction of the condition is amply considered by the author.

There seems to be no unanimity of opinion relative to the evacuation of blood in a hemopneumothorax. Whether the pleural cavity should be thoroughly cleansed of blood is a matter to be determined by the individual surgeon, and necessity for its removal, or otherwise, would seem to depend very largely on the probability of infection. Certainly so excellent a culture medium as blood should not be left to encourage the growth of organisms in the presence of probable infection.

The speaker stresses the tendency to hemostasis by the compression an elastic lung exerts on a laceration as the organ collapses. He does not stress the contrary factor that the constantly moving thoracic cage encourages continuing hemorrhage when the lesions are in the wall. It is our experience that a bleeding intercostal artery until ligated continues to act as a source of hemorrhage. Also, costal fragments penetrating lung parenchyma continue to act as deterrent factors to recovery until they are removed.

It would seem after the primary shock of a widely opened pleural cavity has passed that such surgery as is demanded for control of hemorrhage, evacuation of blood clots, or removal of fragments should be as safely accomplished in this part of the body as in any other.

✽

A. LINCOLN BROWN, M. D. (490 Post Street, San Francisco).—There are certain fundamental differences in the physiology of the thoracic cavity as compared with that of the abdominal cavity which renders different the treatment to be accorded penetrating wounds of these two regions. We cannot carry the acknowledged principles of traumatic ab-

dominal surgery directly over to the care of penetrating wounds of the thoracic cavity. First: The importance of the maintenance of the intra-abdominal pressure relationships are as nil compared with the serious difficulties which may result from changes in the intrathoracic pressures, especially if these changes are brought about suddenly. It might be mentioned in passing that opening the abdominal cavity alone may produce pressure changes which are of more importance in the thoracic cavity than in the abdominal cavity itself. Second: None of the organs of the thoracic cavity are ever at complete rest and it is impossible to bring them to such a state. On the other hand, many of the abdominal organs are normally in a state of at least comparative immobility. Third: Hemorrhage, its occurrence and disappearance, differs in the two cavities. Blood pressure in the pulmonary circulation is about one-sixth of that in the abdominal circulation, and hence bleeding in the former case is more easily controlled than in the latter. In certain instances we use the abdominal cavity as a place to put blood for a transfusion; we would not think of injecting blood for such a purpose into the pleural cavity because blood behaves differently when free in these two spaces. In the abdominal cavity it appears to be rather readily absorbed and causes no other damage. In the thoracic cavity blood is at best slowly absorbed. It is prone to become infected. Its presence causes a diminution in the available respiratory space and in large quantities may produce serious pressure symptoms. When finally absorbed it leaves a thickened pleural surface, disturbing the normal respiratory movements of the lung. Frequently, also, large fibrin clots remain which require surgical extraction.

It is with an understanding of the differences in the physiology of the two cavities that rational methods of treating penetrating wounds of the pleural cavity are being evolved.

The problem as to what should be done with the blood which has collected in the thoracic cavity is at present a moot question. I personally believe in early and repeated aspirations accompanied by replacement of the aspirated blood with oxygen or air with the aid of a pneumothorax outfit.

I believe in the removal of the hemothorax because it (1) lessens the danger of infection and empyema; (2) allows the more rapid expansion of the lung and restoration of normal intrathoracic relationships; (3) lessens the ultimate thickening of the pleura with fibrin and subsequent distortion of the expanding lungs; (4) statistically, aspiration has reduced the mortality in a large series of collected cases about 15 per cent.

As I have shown, the blood fluid which has been withdrawn is suitable for immediate reinfusion, *i. e.*, autotransfusion, a method which is often both practical and advisable.\*

✽

DOCTOR STEPHENS (Closing).—It has been our experience in the treatment of tension pneumothorax that, once the increased intrathoracic pressure is properly controlled, the source of the pneumothorax rapidly closes. Needle drainage, therefore, is required only twenty-four to forty-eight hours. Infection rarely results in such a short period.

The experience of Doctor Fairchild, as regards a bleeding intercostal artery, is quite in keeping with our own. Injection of air into the thoracic cavity has no effect on a bleeding intercostal vessel, and such hemorrhage usually requires operative exposure and ligation of the offending vessel.

\* A. Lincoln Brown and Martin W. Debenham: Autotransfusion—Use of Blood From Hemothorax, *J. A. M. A.*, Vol. 96, April 11, 1931.



## CLEFT LIP AND PALATE—ITS SURGICAL CORRECTION\*

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DISCUSSION by John Homer Woolsey, M. D., San Francisco; Emile Holman, M. D., San Francisco; Emil F. Tholen, M. D., Los Angeles.

THE literature on cleft lip and palate dates back to the time of Aurelius Cornelius Celsus, a contemporary of Tiberius, who lived from 42 B. C. to 37 A. D. and who described an operation for cleft lip. Since that time over two thousand books, articles, and treatises have been published relative to this branch of surgery. Recently a well known editor of a medical journal stated that further articles for publication on these subjects were unacceptable. Yet statistics tell us that almost 80 per cent of all palatoplastic surgery results in failure in some form. If the same percentage of failures occurred in other branches of surgery a general alarm would be broadcast.

Due to the fact that the deformity is so conspicuous and so distressing as to rob the individual of correct speech as well as making him an object of commiseration or ridicule to others, is it not time that the profession takes a definite stand to lower the percentage of failures in this type of surgery? Unfortunately, surgeons especially trained in this work are few, and in view of the seriousness of the deformity these patients should be cared for by them. Yet clinical histories from a large number of both clinic and private patients show that dentists, osteopathic surgeons, general practitioners, and others have done cleft palate operations in an attempt at correction.

### REASONS FOR FAILURES IN CLEFT PALATE OPERATIONS

There is no doubt of the frequency of failures, whether or not due to a lack of understanding or the fact that any type of correction, good or bad, is better than the original deformity. Nevertheless the fact remains that a busy palatoplastic surgeon's practice is largely made up of patients for whom failures have occurred. In order properly to appreciate the reasons for so many failures one must consider that there are:

1. Sixteen types or forms which the cleft may assume.
2. Differences of opinion as to: (a) Time of operation. (b) Order or sequence of operation. (c) What constitutes a result. (d) Technique to be employed.
3. Individualistic tendencies among surgeons.
4. Insufficient funds available for the care of the patient.

Brophy classifies cleft palate into sixteen types, dependent upon the form and extent of the cleft. Nine of the sixteen require operations in early

infancy to unite the separated bones, one type is inoperable, and there are twelve which require closure of the so-called soft palate, which really means all of the overlying soft tissues from the uvula forward.

When a patient is presented for possible operation the surgeon must decide, primarily, the type of cleft; secondarily, the proper time at which to operate; and then, the order or sequence of the operations.

In clefts of the palate wherein there is lip involvement the usual tendency is to attempt correction of the cleft lip as early as possible. Many surgeons operate upon the lip as early as the first twenty-four hours of life, claiming that the child improves faster, that the shock is lessened, and that the feelings of both parents and friends are assuaged. Moreover, they claim that traction produced by the action of the united orbicularis oris will move the cleft bones together in such approximation that the bone operation is either unnecessary or at least greatly facilitated.

While these claims are entirely within the realm of possibility and in certain respects quite commendable, yet due consideration must be given to the difficulties involved if the lip operation is done prior to obtaining a bony union. The bone cleft presents a problem not unlike an ununited fracture with the tissues overlying it spread open but healed. It is difficult to believe that the same surgeons who advocate closing the lip first would close separated but well healed flaps over a fracture of the femur, and after union of the soft tissues had occurred proceed to set the fracture. It is contrary to surgical principles. Plastic surgery of the face teaches the importance of obtaining a proper bone foundation if the soft parts are to be normal. Therefore the entire groundwork for operations on the lip, nose, and soft tissues of the palate is dependent upon the formation of a united bony arch. Moreover the palatal plates are abnormally elevated during the formation of the cleft, and if the bones are simply approximated without being united the elevation remains the same. Then, too, there arises the problem of orthodontia after eruption of the teeth. While practically all cases of cleft palate involving the bones require orthodontia, whether operated upon or not, those which have been merely approximated without union present a serious problem for the orthodontist. If it becomes necessary to widen the arch in order to obtain normal occlusion and there is nonunion, the outward movement separates the approximated bones and widens the cleft. Orthodontists who recognize this condition oftentimes refuse to accept these patients until a surgeon has effected a bony union so that normal occlusion may be obtained without creating a greater deformity. In the majority of instances the nose is flattened and deformed and if the lip is closed prior to the bone operation, not only is there much less room in which to work on the palate afterward, but the undercutting and tissue trauma necessary to bring the nose over to the median line is increased to the exact width of the bony cleft.

\* From the division of plastic surgery, Stanford University School of Medicine.

\* Read before the Surgery Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.



Fig. 1.—A cleft which was approximated by closing the lip first. An orthodontist would probably increase the cleft if expansion of the arch was attempted. Note the widespread tuberosities and the irregularity of the teeth in spite of the fact that no wires were used. Failure resulted because the bones were not united before other operations were attempted.



Fig. 2.—Casts of same mouth, showing in "A" condition prior to lengthening palate. By utilizing two-thirds of the palatopharyngeal muscle on each side, a long flexible palate was obtained as shown in "B."

For these reasons Brophy early advocated the correction of the cleft in the bone before the lip operation was done. The time element is important, for the bone operation depends upon moulding or bending the bones to their proper positions and retaining them until union occurs. The jaws of an infant at birth are only 50 per cent calcified, but after the sixth month calcification goes on quite rapidly; some of the teeth are erupting and the moulding process is accomplished with great difficulty. The preferable time for the bone operation is between the sixth week and the third month, and if union is obtained the lip is closed six weeks later.

#### BROPHY OPERATIONS

The Brophy bone operation has many ardent followers as well as many critics. Chief among the criticisms offered are the following:

1. The time element. Many men criticize the procedure because it takes longer to insert the double wire sutures than it does to place a single wire suture through the anterior part of the cleft.
2. Displacement of tooth buds.
3. Dietary upsets and shock.
4. Sloughing of tissues under the lead plates.
5. Union of bones unnecessary.

While it is admitted that the time required for the complete Brophy bone operation is greater than that for the single wire suture operation, the results obtained warrant the procedure. In the first place, the Brophy bone operation, properly done, lays the foundation for the series of operations which follow on the lip, soft tissues of the palate and nose, and still later for the orthodontia which is necessary. Secondly, the posterior wires prevent spreading of the tuberosities with the sequelae which follow in the wake of such spreading. The displacement of tooth buds by wiring is usually found to be a technical fault. Now and then a tooth bud is lost because it lies in the cleft and interferes with union, but care in manipulation of the pilot suture needles,



Fig. 3.—X-ray showing cleft still present in spite of approximation. Wires have not been used, yet note the irregularity of the teeth.



Fig. 4.—X-ray showing bony union following green-stick fracture operation. The silver wire is in place, the cleft is closed, and a firm bony arch is formed. With this foundation other operations to close the soft tissues will follow.



changing their course if a tooth is encountered, should prevent distortion or loss. Dietary upsets and shock are avoided if operations are done at the proper time and the child is under the care of a pediatrician. Advocates of appliances for moving the bones slowly together instead of the Brophy bone operation claim these two points, but it would seem that more disturbance in diet would occur if a spring-regulated mechanical device, held in place by six or eight sharp-pointed prongs piercing the bone, were used. Moreover, there would be no lowering of the elevated palatal plates, so necessary for the normal development of the alveolar ridges. Sloughing of tissues under the lead plates in the Brophy bone operation is unknown. A few cases of slough have occurred in the soft tissue operation when improper use of the lead plates was made, but this writer has never seen sloughing occur following their proper use in the bone operation, even though left in place over two years, due to the patient's illness and inability to return. If union of the bones is considered unnecessary in order to obtain a result, it is an opinion not in accord with views held by some of the best specialists in this field.

#### END RESULTS

The end results of all palatoplastic surgery should be:

1. A firm bony union of the maxillae and premaxillae.
2. Soft tissues perfectly united throughout, long enough to close the postpharyngeal space, flexible enough to control the amount of air passing through the oronasal communication, and resilient enough to allow normal respiratory function.

These factors are within the reach of every surgeon who does this type of work. It must be remembered, however, that in a cleft of palate or lip there is enough tissue, but only enough to form a normal palate or lip. The tissues are merely ununited and malposed. In practically every case there is no deficiency. Therefore it is necessary to conserve all tissues at the time of operation. Nor is mere closure of the soft parts enough. A soft palate which is united at the expense of heavy scars or thickened short flaps, leaving the postpharyngeal space open so widely that normal speech cannot be attained, is a poor substitute for what may be given a patient through better understanding and careful technique.

#### TECHNIQUE

Students of this subject find themselves all at sea in choosing a technique to be employed for a particular case. In conversation with the chief of the surgical staff of one of our large universities recently, relative to palatoplastic surgery, he stated that of the many cases operated upon, practically every type of technique advocated had been tried out in the hope of reducing the proportion of failures. With so many conflicting opinions and so many individualistic tendencies among operators, it is difficult to lay down rules or fundamental laws which will work to the best

advantage of the patient. However, if failures are to be avoided certain standard principles must be adopted.

If it is agreed that a long flexible palate, capable of perfect function and speech, is desired, there are reasons enough to warrant forming a foundation by uniting the bones first. These reasons may be summed up as follows:

1. Normal foundation for lip, nose, and soft tissue operations.
2. More nearly normal occlusion of the teeth.
3. Foundation for orthodontic treatment.
4. Prevention of oronasal sinuses.

Each case which presents for surgical correction, early or late, should be studied and an attempt made to obtain a bony union prior to other operations. Early cases may require only the typical Brophy bone operation. If the patient has never been operated and is over six months of age, it may be impossible to obtain complete closure of the bones at the first operation, but if the wires are tightened at different times closure may be effected. Older patients require a green-stick fracture operation in order to get the separated bones into contact so that union may occur. This is done by chiseling through the outer alveolar plate in the region of the cuspid eminence, thence across under the floor of the nose and, leaving the lingual plate intact, a green-stick fracture is made, the bones brought together and held in place with silver wires. While such an operation seems radical, the importance of bony union cannot be overestimated. When a united bony arch has been made, success in future operations may be expected, for the majority of failures in palatoplastic surgery are primarily those in which there has been failure in the bone operation.

Following the bone operation, closure of the lip is made. Surgery of the cleft lip involves surgery of the nose in many cases. It must be remembered that in all clefts where the bones are separated a floor must be constructed for the affected nostril or both if necessary, otherwise a persistent oronasal sinus will result. Any operation which does not sacrifice lip tissue, which will bring the nose into normal position and give normal shape and contour to both nose and lip, should be the operation of choice. The surgeon must avoid: (1) Sacrificing too much tissue. (2) Making the lip too long. (3) Lack of central fullness. (4) Notches in the lip. (5) Scar tissue. (6) Tension. (7) Infection.

Equalization in length of flaps, approximation of broad, flat surfaces, union of muscle elements, and care in uniting skin with skin, and mucosa with mucosa, are the fundamental principles of lip surgery. Closure may be made at any time if there is no cleft of the bones, but if the bone is involved clefts of the lip are closed at the time the wires are removed from the cleft bones. This is usually six weeks after the bone operation, and saves the patient a second anesthetic, which is important when a series of operations are necessary. Tension is best avoided by proper undercutting, careful approximation, and the use of the Logan traction bow. Scar tissue may be overcome



in most cases by relieving tension, perfect adaptation, and early removal of sutures. Too many sutures must not be used. Infections of the lip should not occur. The use of the quartz light will oftentimes clear up mild infections, prevent seepage, and dry up a "wet" lip. Allowance is always made for some shrinkage in the midline.

Closure of the soft tissues of the palate is best done just prior to the time the child learns to speak. The advantages gained in waiting are that the flaps are better nourished, the elevated plates are more nearly normal, the arch is rounded out by the erupting teeth, resistance to infection is greater, and the feedings are farther apart. Flaps are raised with special periosteal elevators, well toward the linguogingival areas and posteriorly far back over the hamular process of the sphenoid. A definite right-angle excision of a tiny portion of the flaps in the midline from the tip of the uvula forward to the end of the cleft is better than any attempt at splitting the flaps. Broader surfaces are brought into contact for healing. Sutures must not be placed too closely together and tension must be avoided. Horsehair is the material of choice. Due to the independent movement of the muscles contained in each flap, the pressure of the tongue in swallowing, vocalization, etc., a splint of some kind must be used. In 1883 Brophy designed and used silver wires and lead plates to act as a splint to hold the lateral flaps in place during the healing process. By placing the posterior wire through the tensor palati muscle on each side, and the anterior wire slightly in advance, the splint causes the lateral flaps to move in unison without disturbance to the healing surfaces. Moreover the ends of the wires when bent down and twisted upon the lead plates cause discomfort to the patient when the tongue is raised in forceful swallowing, crying, sucking, etc., and render other appliances unnecessary. The splint must not be made tight enough to cut off circulation. It is not placed to pull the tissues forcibly together. All tension must be relieved by undercutting, and not by means of the silver wires and lead plates. The plates must be well away from the suture line and contoured to the shape of the palate. Most important of all is the avoidance of tissue trauma in this operation. Small hooks are used to handle the tissues instead of forceps. Postoperatively the wound edges are kept clean by irrigations following each feeding and painted with Berwick's dye.

It must be noted that lateral incisions are not used. Proper flap formation, avoiding the spreading of the tuberosities in the primary operation, and the use of the splint renders their use unnecessary.

#### SECONDARY PALATE DEFECTS

Secondary palate defects are many and varied and oftentimes require all the ingenuity at the surgeon's command. The French gliding flap method is oftentimes efficient for small openings. Ollier-Thiersch, Wolfe, and the Gillies tubed pedicle grafts have all been used in some otherwise hopelessly inoperable cases.

Where a short, tense, scarred palate exists, even though closed, normal speech can never be attained until the palate has been lengthened. This is best done by utilizing two-thirds of the palatopharyngeous muscle on each side, freshening the edges and adding on to the end of the palate.

Following this operation, speech training is advocated. In all cases, if speech has been learned prior to closure of the soft palate, even though a long, flexible palate is made, speech training is necessary. The surgeon can give the child the instrument of speech, but the child must be taught to correct the defects acquired in speaking abnormally. Some surgeons feel that cleft palate patients never attain perfect speech, but this is not true.

Proper attention to detail, time, and sequence of operations and a thorough understanding of technique are the factors needed to attain what should be the goal of every operator who attempts cleft palate surgery—perfect speech.

209 Post Street.

#### DISCUSSION

JOHN HOMER WOOLSEY, M. D. (University of California Hospital).—Experience and duration of time to observe leads one to safer and more practical conclusions. Experience with methods outlined by the author as well as with other methods, the opportunity to observe patients operated in childhood and now attained to their majority and who are certainly "the proof of the pudding," has taught me certain procedures of value. As a result, I am convinced beyond a doubt of the fact that the use of wires and lead plates—acute forceful measures—as outlined by the author, do not give as good symmetry of the alveolar processes; they more often cause a tipping in of the entire alveolar border; injure the dental buds in many instances; give greater irregularity of alignment of the permanent teeth; and are a decidedly severe procedure leading at times to shock and even death, and the latter even in a master's hands. On the other hand, the nonemployment of the wires and lead plates, but the early closure of the lip (that is within the first six months surely, and even up to eighteen months) gives a symmetrical, normal arch to the anterior margin of the palate exactly comparable to the normal maxillary arch; aids closure of the palate by the gradual approximation due to the pull via the lip muscles, and results, in the majority of instances, in equally as good or better speech.

Figure 1 in the author's article does not represent the true result of closing the lip first. It would appear that either the closure of the lip was effected only after bony formation had occurred or, unwisely, closure of the palate was first attempted.

The comparison of the closure of a cleft palate by closure of the lip first to the reduction of a fracture with intervening soft tissues is inappropriate, for there is firm bony formation above the cleft process; the closure of the periosteal flaps of the hard palate eventually gives a bony union and later periosteal flaps can be brought into approximation from the alveolar edges, thereby giving exact bony union. Thus there never follows any such mobility or deformity as in an ununited fracture, as many readers of this article might interpret from the comparison made.

There are some patients who, unfortunately, have had all tissue available for closure entirely used up in plastic attempts. For these I would recommend the artificial palate which functions satisfactorily and can be constructed by any dentist at a minimum cost and without putting the patient through a wearisome, costly and, as a rule, unsuccessful Italian flap method, which occasionally is most unwisely attempted.



Speech is very good at times, but in every instance is the result of personal endeavor on the part of the patient. Fortunately speech training is now available to all who need the same through the school system of our State of California.

✱

EMILE HOLMAN, M. D. (Stanford University Medical School, San Francisco).—In considering any subject containing within itself so many controversial elements as the proper procedure to follow in the operative correction of cleft palate, it is well to remember one of the aphorisms of Hippocrates: "Life is short, the art long, the occasion fleeting, experience fallacious, and deduction difficult." The occasional operator for cleft palate will undoubtedly be baffled by the intricate and sometimes difficult application of the Brophy procedures, and the results in his hands cannot be anything but discouraging. Logically, in planning any structural engineering it would appear preferable to build first the framework and then apply the covering. The bony defect in a cleft palate requires correction as certainly as does the approximation of the soft parts, and if this can be accomplished without destruction of other important tissues, such as the unerupted teeth, logically this should be done first. Brophy and his students assert that this can be done, and certainly the large experience of the former demonstrated not only that it is feasible, but also that it is desirable.

Of one point there can be no question—the desirability of providing a sufficiently long and flexible soft palate to permit a proper closure of the nasopharynx in the function of speech. Brophy's results in this respect were most gratifying and are undoubtedly the most important evidence favoring the application of his principles. The utilization of the palatopharyngeal muscles to lengthen the palate has also proved its worth when previous operations have resulted in a tense and shortened palate.

It is well in considering the subject of cleft palate to remember also that when the great artist, Nature, has failed, mere man is doomed to many disappointments in attempting to correct her mistakes. Limited experience may be fallacious, but a wide experience is instructive, and would seem to bear out the correctness of the logic of the Brophy procedures.

✱

EMIL F. THOLEN, M. D., D. D. S. (1136 West Sixth Street, Los Angeles).—My experience with over two hundred of these cases leads me to endorse Doctor Woolsey's opinions and findings. Years ago I felt as Doctor Davis does about repair of the palate, but was forced to abandon the Brophy operation because of the results obtained not only in my own work, but in at least a dozen cases that came under my care that had been worked on by Doctor Brophy. I mention this so that it cannot be said I did not use his technique correctly. There is no question that the teeth buds are destroyed and misplaced by that operation, and the results expected in the way of bone union and normal replacement are not obtained any more often than with simple lip closure. We now use the Brophy operation only in older children with wide clefts and badly misplaced premaxilla. In some cases we find it necessary to place one wire after molding the bone in close approximation and then closing the lip over it. Doctor Moorehead demonstrated this method over ten years ago. In single clefts we are using the Blair method of lip closure and are obtaining better results than ever before.

I have the highest regard for Doctor Davis' work and his keen interest in plastic and oral surgery, but in this field, I regret to say, our ideas differ widely.

✱

DOCTOR DAVIS (Closing).—During Doctor Brophy's lifetime, devoted almost exclusively for forty-five years to cleft lip and palate surgery, approximately sixty-five hundred cases were operated upon by him. In 1923 he published a book in which he reported

over five thousand cases. If experience and duration of time led him to safer and more practical conclusions, surely he would have been won over to the "procedures of value."

The antagonism to the Brophy operation is usually traceable to the few cases seen by other surgeons wherein failure had occurred. Any surgeon who does a large number of cleft palate cases will have a certain proportion of failures. I make no claim to offering the Brophy technique as a panacea for failures. No doubt, in the hands of men untrained in this technique "tipping of the entire alveolar border, injury to tooth buds, irregularity of teeth, etc.," *does* occur. But when these things do happen, and the cause is ferreted out, a lack of understanding of the proper technique is responsible. "Shock" and even "death" are two things which every surgeon must face. In the city of Chicago in 1921 the death rate from all causes in all infants born was 12.99 per cent. Brophy's series of over five thousand cleft palate cases prior to 1915 shows a mortality of 5.2 per cent, and after 1915 1.80 per cent, even including those who died while under observation two to three months after operation.

I am sorry to find such a variance of opinion as to what constitutes a symmetrical, normal dental arch. The whole object of this paper has been to show why a symmetrical, normal, united bony arch, with normal tuberosities cannot occur where it is dependent upon the traction of the lip muscles. Approximation, yes, but firm bony union never. How simplified cleft palate surgery would be were it possible to treat it, not as an ununited fracture with intervening soft tissue, but as an operative procedure involving only the turning of flaps, never followed by any mobility or deformity.

Figure 1 was chosen at random from many similar casts—some showing more and some showing less approximation of the bones *as the result of closing the lip first*. Closure of the palate was *not* attempted first.

## BENZOL POISONING\*

### REPORT OF CASE

By D. SCHUYLER PULFORD, M. D.  
Woodland

DISCUSSION by John Martin Askey, M. D., Los Angeles;  
Ernest H. Falconer, M. D., San Francisco.

CHRONIC benzol poisoning should be considered in the differential diagnosis of severe anemias associated with hemorrhage or purpura. Especially is this true if the purpura or the bleeding, which may be from gums, stomach, or uterus, is accompanied by a low platelet and white blood cell count. Without a history of exposure to benzol the differential diagnosis from aplastic anemia, thrombocytopenic purpura and agranulocytosis is difficult, if not impossible.

### LITERATURE ON BENZOL POISONING

From Germany, where benzene (benzol) was first made extensively, came some of the earliest reports of poisoning as in Santesson's<sup>1</sup> article, published in 1897, in which he reported nine cases of poisoning, with four deaths, of girls working in a tire factory. Selling<sup>2</sup> as early as 1910 described chronic benzene poisoning of girls working in canning factories where rubber dissolved with benzene was used as a sealing fluid. He called attention to hemorrhagic purpura in some of these cases.<sup>3</sup>

\* From the department of medicine, Woodland Clinic, Woodland.

\* Read before the Nevada State Medical Association at Reno, Nevada, September 26-27, 1930.



When all trade with Germany was cut off in 1914 at the time of the World War, it was necessary for the United States to make large quantities of benzene products. After the war, great quantities of cold-tar distillates were thrown on the market, the price falling to the point where they could be economically substituted for the formerly cheaper petroleum solvents. Benzol then became widely used in the rubber industry, manufacture of tires, cement for the soles of shoes, sealing mixtures for use in canneries, manufacture of straw hats, and fabrikoids, and as a substitute for gasoline for motor fuel. Petroleum distillates were also replaced by the benzene series in the making of rapidly drying varnishes, paints, and shellacs, as well as in the dry-cleaning industry.

Alice Hamilton<sup>4</sup> in 1917 called attention to fourteen cases of acute benzol poisoning with seven deaths in workmen engaged in the manufacture of explosives. This is probably the first article calling attention to acute benzol poisoning in American industry. In 1922<sup>5</sup> she repeated her warning against this growing hazard of benzol poisoning in America. In 1928,<sup>6</sup> however, she pointed out that due to the efforts of the Committee on Benzol Poisoning, appointed in 1922 by the National Safety Council, there had been by 1926<sup>7</sup> a great lessening in the menace of benzol poisoning in American industry.

Winslow<sup>8</sup> in 1927 summarized one hundred cases from the American and European literature with 50 per cent mortality, and mentioned the first acute case as having occurred in 1862. A. R. Smith in 1928<sup>9</sup> reported upon chronic benzol poisoning among women workers in six factories. This article contains a very good bibliography, which, together with that included in the final report of the Committee on Benzol Poisoning of the National Safety Council, 1926,<sup>7</sup> gives one a comprehensive review of the literature.

The substitution of toluol for benzol for dissolving lacquers in the paint industry and the introduction of rubber latex<sup>10</sup> as a substitute for rubber dissolved in benzol reduced the hazard very remarkably in these two industries. The painting and tire and rubber goods industries had produced the majority of cases of benzol poisoning.

The literature in the last few years reports occasional cases of benzol poisoning from France, Germany, and America. Sweeney<sup>11</sup> and Askey<sup>12</sup> have recently called attention to the similarity clinically of benzol poisoning, acute aplastic anemia, and hemorrhagic purpura.

The following case of benzol poisoning in a painter is reported to emphasize the important points in differential diagnosis and to call attention to the ever-present menace of benzol to the American workman.

#### REPORT OF CASE

A man, age forty-six, a painter for twenty-seven years, entered the clinic March 12, 1930, complaining of dizziness, weakness, and bleeding from the gums. Family history was negative for bleeding, anemia, tuberculosis, or cancer. Patient's general health since

childhood had been excellent, except for attacks of "painter's sickness" from time to time. Up to one year ago he had had occasional "Monday morning sickness" associated with weak wrists.

*Present Illness.*—In March 1929, patient had lead colic for ten days with vomiting and diarrhea. Unable to stop painting, he had either nausea or vomiting almost daily for the past year. Four weeks before admission, after painting furniture with some quick-drying shellac in a closed room, he became dizzy, extremely weak, had abdominal cramps, and was forced to stop work. His gums began to bleed intermittently and soon showed a continual ooze. There was no purpura, jaundice, mental symptom, colic, or wrist drop. He was so weak that he remained in bed for three weeks before entering the clinic. Constipation was marked. He complained of numbness of the fingers and toes.

Physical examination showed an emaciated, weak, bedridden patient with an ashen gray pallor to the skin, and pale mucous membranes. There was neither ecchymosis nor jaundice. The gums were hidden from sight by adherent blood-clots and a continual oozing. There was no lead line, although the hygiene of the teeth was bad. A precordial systolic murmur was present. The lungs were clear; spleen and liver were not felt.

The essential laboratory findings were: hemoglobin, 21 per cent; red blood cells, 1,200,000; white blood cells, 1940; polymorphonuclears, 26 per cent; occasional normoblast; no basophilic stippling; platelet count, 94,000; noncontractile clot (five and one-half hours). Bleeding time was four minutes; coagulation time six and one-half minutes; reticulated red blood cells, one per cent; fragility of the red blood cells normal. Blood Wassermann was negative. Tourniquet test was weakly positive.

A diagnosis of benzol poisoning, with secondary anemia, was made.

*Progress.*—After two transfusions of 500 cubic centimeters of citrated blood, the white blood cells rose in six days from 1940 to 8200; polymorphonuclears rising from 26 to 76 per cent. Although the hemoglobin was only 35 per cent and red blood cells 2,290,000, the bleeding from the gums had entirely stopped. A week later the hemoglobin was 56 per cent with 3,050,000 red blood cells, and the platelets a normal figure of 300,000. A high vitamin diet had been instituted and quartz mercury light treatments given. On April 4, 1930, twenty-three days after admission the following blood picture was noted: hemoglobin, 70 per cent; red blood cells, 4,750,000; white blood cells, 12,800; polymorphonuclears, 63 per cent; no basophilic stippling; coagulation time, four minutes; bleeding time, two minutes; retractility of clot, five hours. Tourniquet test was weakly positive.

Thinking that the patient might have considerable stored lead, because of his long contact with paint and his former frequent attacks of colic, he was given large doses of calcium lactate in milk and ammonium chlorid with magnesium sulphate daily. The plasma carbon dioxid reduced under this deleading treatment to 54 volumes per cent, but at no time was basophilic stippling seen in the red blood cells, nor did symptoms of lead poisoning intervene.

The patient left the hospital April 14, 1930, thirty-three days after admission, feeling quite well, having gained fifteen pounds in weight, and with a normal blood picture. He has been well ever since.

#### PATHOLOGY

Benzol poisoning occurs in both acute and chronic forms. Newton<sup>13</sup> in 1920 gave a valuable report of its early stages. Three chemists were exposed to moderate doses for two weeks. One became ill with headache, weakness, anorexia, and weight loss followed by sudden abdominal cramps, nausea and vomiting. His blood count showed



1200 white blood cells with 39 per cent large mononuclears; 4,760,000 red blood cells, and hemoglobin 80 per cent; a striking leukopenia without reduction of red blood cells or hemoglobin. The other two men with similarly reduced white blood cells, 1250 and 1700, respectively, and with a little more anemia, did not have symptoms. Removing the poison resulted in recovery of all three, no treatment being necessary. This emphasizes the importance of early and periodic blood counts in workmen exposed to benzol and indicates the earliest pathologic action to be reduction of the white blood cells.

Newton noted in other cases that repeated exposures to benzol over long periods of time did not produce a leukopenia, therefore indicating that its action was not cumulative. He also showed that the maximum white blood cell destruction did not take place for several hours after the onset of symptoms. Autopsies and animal experimentation show that acute poisoning may be very rapidly fatal in both man and animal, but that susceptibility varies widely in the different individuals. In acute poisoning the blood becomes chocolate brown in color, there is hemorrhage into the gastric mucosa, bloody foam in the bronchi, and venous engorgement. These symptoms are followed by muscular twitching, deep narcosis, and respiratory paralysis which causes death. In studies of the pathology of chronic benzol poisoning, Selling's<sup>14</sup> researches and the reports of Duke<sup>15</sup> and others show the following:

(a) Direct destruction of white blood cells with failure to reform.

(b) Direct destruction of blood platelets after a preliminary rise, and the cells that produce them, the bone marrow megakaryocytes.

(c) Destruction of red blood cells and prevention of regeneration of the same.

These changes occur in the order given, the polymorphonuclears suffering most. They call attention to the fact that with an associated acute infection the white blood cells may not be reduced.

Rusk<sup>16</sup> in 1914 reported the interesting fact that chronic benzol poisoning prevents animals from developing hemolysins and precipitins as efficiently as normal. This may explain why some of these patients lack resistance to infections, a characteristic of agranulocytosis also.

Sweeney<sup>11</sup> reported a case of chronic aplastic anemia with hemorrhagic purpura in a patient exposed to benzol who at autopsy showed hemorrhages into the brain substance and, subdurally, hemorrhages into the kidney, epicardium, pleura and retroperitoneal surfaces, as well as under the skin. The spleen weighed only 250 grams, and the exposure to benzol was definite and marked. The bone marrow showed a moderate increase in blood formation in ribs and vertebrae with the fat still preserved, but focal hypoplastic areas for the red blood and the white blood cell series. The tendency to purpura and bleeding from mucous membranes is associated with the low platelet count and is an almost constant finding in the many autopsies reported.

Batchelor<sup>17</sup> has reported from experiments on animals that toluol, xylol, and high-flash naphtha,

recommended as substitutes for benzol, though more poisonous, are so much less volatile and of such disagreeable odor that they can be used with greater safety.

Autopsy findings describing the usual bone marrow changes are well recorded in the case reported by Rohner, Baldridge, and Hansmann<sup>18</sup> as follows: "Marked hematopoietic insufficiency as evidenced by leukopenia and low platelet and red blood cell counts was seen to be due to failure of the marrow cells to produce either granulocytes or megakaryocytes. The few bone marrow cells present contained inclusions of pigment, some being obviously endothelial phagocytes and others resembling nongranular myelocytes.

"The lymph node system is less disturbed, but cells are small; the endothelial system is less damaged than the lymph cells and the lymph cells not as much as the myelocytes and megakaryocytes. The patient described died of a bronchopneumonia, sections of the lungs showing, as usual, no inflammatory cells about the fibrin in the lung alveoli."

To sum up the pathologic findings of benzol poisoning we have: (a) leukopenia; (b) aplastic anemia; (c) thrombocytopenia; (d) aplasia of bone marrow; (e) absence of inflammatory cells in response to infection.

#### DIFFERENTIAL DIAGNOSIS

The criteria for establishing the diagnosis of benzol poisoning as stated in the report of the United States Public Health Service in coöperation with the National Safety Council<sup>7</sup> are as follows: "A history of exposure to benzol and a white blood cell count below 5600 is accepted as reasonable evidence of poisoning."

Benzol poisoning must be differentiated from the several pathologic states in which leukopenia and anemia are found together. Thrombocytopenic purpura with splenomegaly, and agranulocytosis and aplastic anemia without splenomegaly, show the greatest similarity to benzol poisoning.

Agranulocytosis with its anemia, leukopenia, relative lymphocytosis hemorrhage, and gingivitis resembles benzol poisoning, but it lacks as a rule a history of benzol exposure. In benzol poisoning the spongy oozing gums seldom ulcerate or become gangrenous, nor do they slough or involve laryngeal or pharyngeal tissues. Agranulocytosis may, however, be unaccompanied by appreciable involvement of the oral mucous membranes. In benzol poisoning neither ulcerations nor a bacteremia occur, nor is there much fever unless terminal, while in agranulocytosis fever is an early and persistent feature. In agranulocytosis the coagulation time, bleeding time, platelet count, and retractility of blood-clot are not affected, while in benzol poisoning reduced platelets, prolonged bleeding time, and a positive tourniquet test are usually found.

A history of exposure to benzol may be the only differential point separating benzol poisoning from thrombocytopenic purpura, although in the latter purpura is more likely to be outstanding as a clinical feature and oozing from the gums in the former. Late in the course of a thrombocyto-

TABLE 1.—*Diseases With Anemia and Leukopenia*

|                                       | Benzol poisoning | Agranulocytosis | Thrombocytopenic purpura | Aplastic anemia |
|---------------------------------------|------------------|-----------------|--------------------------|-----------------|
| Red blood cells reduced .....         | + + +            | +               | +                        | + +             |
| White blood cells reduced .....       | + + +            | + + + +         | +                        | + + +           |
| Lymphocytes .....                     | + + +            | + + + +         | .....                    | Normal          |
| Platelet count reduced .....          | + +              | .....           | + + + +                  | +               |
| Coagulation time increased .....      | .....            | .....           | Normal                   | .....           |
| Bleeding time increased .....         | +                | .....           | + + +                    | .....           |
| Contractility clot prolonged .....    | +                | .....           | + + +                    | .....           |
| Tourniquet test .....                 | + +              | .....           | + + + +                  | .....           |
| Spleen enlarged .....                 | .....            | .....           | + +                      | .....           |
| Reticulation of red blood cells ..... | +                | .....           | Normal                   | .....           |
| Normoblasts .....                     | +                | .....           | .....                    | .....           |
| Fragility of red blood cells .....    | .....            | .....           | .....                    | .....           |

penic purpura, a palpable spleen and a higher white blood cell count will be noted. Platelet count and non-retractility of blood-clot are often similar in the two diseases.

It is in an aplastic anemia of unknown origin that we find our most difficult differentiation from benzol poisoning. Here again a history of exposure may be the only definite differential point. Clinically the duration of aplastic anemia is usually not so long as for benzol poisoning.

None of the above should be confused with acute lead poisoning in which there is the characteristic syndrome of vomiting, gastro-intestinal pains, diarrhea, marked general weakness, and dehydration. Chronic plumbism should be easily differentiated by the lead line on the gums, basophilic stippling of the red blood cells and normal total leukocyte counts.

TREATMENT

Removal from exposure to benzol, transfusion, and symptomatic treatment result in the cure of the majority of early mild cases. If the dose has been large or exposure too long, nothing will save life. As an example, the case of an oil refinery worker reported by Sweeney in 1928<sup>11</sup> illustrates failure to respond to twenty transfusions, the patient dying seven months after treatment was started, with widespread hemorrhage throughout many organs. The failure of splenectomy in this case served merely to confirm the diagnosis of benzol poisoning as against thrombocytopenic purpura.

Individual susceptibility seems to be a greater factor as regards the outcome than does the amount or duration of exposure, and transfusion remains the mainstay of treatment.

Table 1 is shown to help visualize the main differential laboratory points between four closely allied diseases.

COMMENT

The prompt recovery of our patient, who had a very severe and long-standing poisoning by benzol, seems to emphasize the fact that the amount of benzol a person can stand, the severity of the

symptoms, response to treatment, and the ultimate outcome all depend more on individual susceptibility than on any specific treatment, though transfusions are probably always indicated.

A classification based on underlying pathology is the classification of choice in all diseases. Accordingly, benzol poisoning, aplastic anemia, and agranulocytosis are practically one and the same disease. We may separate them clinically, but the study of cases of benzol poisoning merely goes to emphasize this and argues that until we find a more definite and fixed etiology we cannot separate agranulocytosis and aplastic anemia.

The fact that chronic benzol poisoning in animals prevents the normal development of hemolysins and precipitins may explain their lack of resistance to infection seen in this type of patient. The similarity of benzol poisoning and agranulocytosis leads one to believe that the angina and other infective processes seen in this disease are secondary and not the primary cause of the malady.

The leukopenia of benzol poisoning was the observation which in the early days led to the benzol treatment of the leukemias.

SUMMARY

Acute benzol poisoning in a painter is described, showing hemorrhage from the gums, marked anemia, and leukopenia, which responded rapidly to repeated transfusions.

The case emphasizes the necessity of considering this fast-disappearing malady in the differential diagnosis of diseases which show marked leukopenia.

Woodland Clinic.

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#### DISCUSSION

JOHN MARTIN ASKEY, M.D. (1930 Wilshire Boulevard, Los Angeles).—Benzol poisoning has become a rare condition since the work of the National Safety Council led to a restriction of its commercial use. Sporadically, however, despite all precautions, its hydra head appears as a warning of its potential menace. This is especially true in considering all cases of leukopenia associated with mucous membrane bleeding. Admittedly the first clinical evidence of benzol poisoning is leukopenia, but the general physician will usually see the patient in the stage of bleeding gums, extreme anemia, and granulocytopenia. If benzol poisoning is not considered, the diagnosis clinically is usually aplastic anemia.

One great difficulty in making the right diagnosis is determining the exposure to benzol. The information usually is not proffered as the patient often does not consider his work an important factor and the doctor may not think to question closely. The diagnosis of true aplastic anemia may be made, a fatal prognosis given, and then, to everyone's surprise, the patient may recover. We feel every patient with leukopenia and bleeding symptoms should be questioned meticulously about the details of his occupation.

One patient we remember remained baffling for some time until it was discovered he scrubbed advertising panels eight hours daily with rags soaked in gasoline. This gasoline contained 17 to 40 per cent aromatic hydrocarbons of which benzol is the basic compound.

Doctor Pulford fittingly emphasizes the peculiar individual susceptibility governing both the development of poisoning and also the chances for recovery when removed from the benzol. In a can factory in Los Angeles where benzol was used in a sealing mixture for cans until the last two years, men had worked

for eight and ten years without any symptoms other than transient dizziness. Only one case of poisoning with bleeding occurred in that time, although if blood counts had been taken probably leukopenia could have been shown in others.

Similarly, the outcome of any case cannot be predicted by its initial severity. It apparently depends upon the inherent ability of the bone marrow to overcome the primary overwhelming shock, a factor that only time can determine.

We have seen a patient with a blood count down to one million red cells recover without a transfusion, but we also remember another patient whose red count was only reduced to 1.2 million red cells and who was given twenty-four transfusions and died.

We are thoroughly in accord with Doctor Pulford's inclusion of benzol poisoning, aplastic anemia, and agranulocytosis in the same category. They all are characterized by varying degrees of bone marrow depression. Agranulocytosis usually involves chiefly the granulocyte centers, often with death, before much anemia develops. In one patient, with typical agranulocytic angina, we observed an intense anemia gradually develop with widespread petechiae in the skin, and necropsy revealed an aplastic marrow. The last red cell count was 780,000.

Thus we believe it is rational to consider agranulocytosis and aplastic anemia as similar diseases differing only in degree. They both may be produced by the same bone marrow poison, arsenic. Benzol usually attacks the whole bone marrow, but the granulocytes first.

We should be alert to the ever-lurking menace of the poison benzol, and all cases, becoming rarer every year, should always be recorded.

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ERNEST H. FALCONER, M.D. (384 Post Street, San Francisco).—Doctor Pulford has covered the literature on benzol poisoning very thoroughly, leaving nothing of importance to be brought out in discussion. Dr. Emmett C. Taylor of San Francisco and I have been much interested in studying the blood pictures of a large number of workers in the several plants of a can manufacturing company. These studies have extended over a period of several years and bring out some interesting data bearing on what might be termed "latent benzol poisoning." Apparently the earliest change noted in the blood, according to our observations, is a diminution of platelets. This may be the only demonstrable clinical finding that occurs in latent cases. We have reason to feel, however, that the bone-marrow reserve (or a better term is the hematopoietic reserve) is considerably lowered. The reasons for this conclusion are that an individual taken away from exposure to benzol does not regenerate a normal number of platelets for several months. An infection such as influenza may precipitate a full-blown picture of benzol poisoning with leukopenia, anemia, purpura and hemorrhages in these individuals several months after removal from exposure to benzol. In one notable instance a man who had been exposed to benzol for fifteen years with no demonstrable signs of intoxication except a diminished platelet count (about 100,000 platelets per cubic centimeter) was removed from exposure and two years later developed an acute respiratory infection followed by a full-blown picture of benzol poisoning with a lethal termination. There is an interesting analogy here to the condition known as agranulocytosis because it has been definitely ascertained that the neutropenia precedes the clinical evidence of infection, thus suggesting that some toxin has paralyzed the granulocytic portion of the marrow before infection sweeps through the system.

✽

DOCTOR PULFORD (Closing).—The author appreciates Doctor Askey's emphasis of the paramount points in the problem of agranulocytosis associated with mucous membrane, bleeding and anemia, as brought out by this case report.



Doctor Falconer's observation of reduced<sup>1</sup> platelet counts in latent cases of benzol poisoning preceding the leukopenia is worthy of a follow-up by all physicians in contact with factory workers or benzol poisoning suspects.

Also the idea of an infection such as influenza precipitating an acute benzol poisoning in a latent poisoning in an apparently otherwise healthy man is especially worthy of emphasis and should be used as a lever to command workers to cease contact with the poison long before they become ill.

Similarly, I have seen a simple influenza precipitate a fatal acute lead poisoning in one of our malignancy patients who was given, in divided doses 500 milligrams of diorthophosphate of lead intravenously in the treatment of cancer of the breast. The acidosis incidental to an acute infection with lead, as with benzol, precipitated poisoning.

THE CLINICAL ASPECTS OF CARCINOMA  
OF THE OVARY\*

By LUDWIG A. EMGE, M. D.  
San Francisco

WHILE studying the histogenesis of a group of ovarian carcinomata listed in our department for the years from 1920 to 1930 it seemed of interest to correlate clinical phenomena with laboratory findings. There were twenty-eight ovarian carcinomata listed, eighteen of which were from clinic patients. This latter group furnished the material discussed here.

Between the years from 1920 to 1930 there were 6714 new admissions and 5678 interdepartmental refers to the Stanford women's clinic. Of this number, 355 patients were afflicted with cancer of the genital tract, or 2.86 per cent. This low figure is deceiving and should be corrected to 5.29 per cent, constituting the true percentage of 355 malignancies in 6714 new admissions, since practically all of the cases discovered occurred in this group. Of the 355 genital malignancies, eighteen affected the ovary, or 5.07 per cent, or when figured on the basis of new admissions, 0.27 per cent.

During the same period we saw seventy-nine proliferating ovarian tumors exclusive of fibromata and sarcomata or, in comparison to new admissions, 1.18 per cent. Eighteen of these proliferating tumors were malignant, or 22.8 per cent.

ANALYSIS OF GROUP STUDIED

In analyzing this group of malignancies I found eight, or 44.4 per cent, to be of the solid, and ten, or 55.6 per cent of the cystic type. Seven, or 38.9 per cent occurred bilaterally, four cystic, and three solid. Eleven, or 61.1 per cent, occurred unilaterally, six cystic and five solid. Among the unilateral tumors, ten, or 90.9 per cent, were found on the right side.

Eleven of the eighteen patients, or 61.1 per cent, were found to have developed metastases when first seen. The following structures were found

to be involved: large bowel, five; abdominal viscera in general, four; mesenteric glands, one; and culdesac, one.

In the histologic study, the origin of the carcinoma was placed as follows:

|                                                                 |   |
|-----------------------------------------------------------------|---|
| Papillary serous cyst .....                                     | 5 |
| Pseudomucinous cyst .....                                       | 1 |
| Parovarian (Wolffian) .....                                     | 2 |
| Dermoid .....                                                   | 1 |
| Granulosa cells .....                                           | 1 |
| Gastro-intestinal tract (including one Kruckenberg tumor) ..... | 8 |

We may, therefore, assume that ten were of primary and eight of secondary origin.

With the exception of two patients not accounted for, all but one were dead prior to 1930. From the clinical picture present at the operation we may assume that the unaccounted-for patients will not be alive. In all instances followed up, death was due to ultimate carcinomatosis.

|                                                       |   |
|-------------------------------------------------------|---|
| First two weeks after operation (carcinomatosis)..... | 5 |
| First six weeks after operation (carcinomatosis)..... | 4 |
| One year after operation (carcinomatosis).....        | 2 |
| Two years after operation (carcinomatosis).....       | 1 |
| Four years after operation (carcinoma of bowel).....  | 1 |
| Five years after operation (carcinoma of bowel).....  | 1 |
| Ten years after operation (carcinoma of bowel).....   | 1 |
| Alive after seven years.....                          | 1 |
| Not accounted for .....                               | 2 |

Postoperative deep roentgen-ray therapy, in conjunction with radium irradiation in three, was used eleven times; with nine deaths, one patient alive, and one not accounted for:

|                         |   |
|-------------------------|---|
| First six months.....   | 2 |
| After one year .....    | 2 |
| After two years .....   | 1 |
| After four years .....  | 1 |
| After five years .....  | 1 |
| After seven years ..... | 1 |

A comparison of the two tabulations does not materially change the gloomy prognosis for ultimate survival, although we may assume that irradiation, while not curative, certainly seems to prolong life.

There is nothing to be found in the literature to substantiate the assumption that removal of primary cancer of the ovary may lead to a complete regression of metastatic growth elsewhere in the abdomen. Although often spoken of among physicians as a fact, it must be regarded as a medical myth and quite contrary to what we know about cancer growth in general.

DIAGNOSIS DELAYED BY LACK OF SYMPTOMS

Carcinoma of the ovary, whether primary or secondary, offers such a gloomy outlook because of the absence of early symptoms. Menstruation, if still present, may not be influenced beyond the usual variation one encounters at various age levels. In our group, nine patients ranging in age from forty to fifty years, had passed the menopause from one to ten years, while the remaining nine, ranging in age from twenty-seven to fifty-two years, were menstruating regularly. There was a recent metrorrhagia (cystic adenocarcinoma of gastro-intestinal origin) in one instance, profuse flow in two, moderate in two, and scanty in four instances. In the menopausal group only one patient had uterine bleeding for two months; in the ninth year of her menopause (sarco-carcinoma).

\* From the Department of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco.  
\* Read before the Obstetrics and Gynecology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.



Pain appears very late and only when the tumor mass has grown to a considerable size or has encroached upon other structures in the pelvis. Only one patient in this group had noticed right lower quadrant pain for sixteen or seventeen years (dermoid) without any particular intensification at the time of her entrance into our service. Three patients complained of epigastric pain, due to metastases found in the mesenteric glands and the rectum. Seven had noticed general lower abdominal pain for some weeks. Two were troubled with sacrolumbar backache, and three had no pain whatsoever but came to the clinic because of visible enlargement of the abdomen.

About half of the number of patients were disturbed by urinary frequency, dysuria or retention. Loss of weight was present also in 50 per cent of the cases studied. In eleven patients definite ascites was demonstrated prior to the operation.

All of the patients had easily palpable masses. Cachexia and secondary anemia, corresponding in degree to the size of the mass and the metastatic involvement, was noticed in about 60 per cent of the patients.

#### TREATMENT—RADICAL REMOVAL WITH POST-OPERATIVE RADIATION

The operative procedure was radical in all cases but three and aimed at a complete removal of all pelvic genital organs.

Postoperative radiation was principally carried out with deep roentgen therapy in the form of massive doses with a complimentary use of vaginally applied radium in three instances.

#### SUMMARY

In summarizing the above tabulations of patients operated upon in the hospital service of the Stanford women's clinic, we are confronted:

1. With the enormously high and early mortality incident to cancer of the ovary whether primary or secondary in origin.
2. With the absence of early objective symptoms, which delays the bringing of the patient to operation until a period when the condition is nearly always inoperable.
3. With the fact that radical surgery, plus irradiation, prolongs life for as long a period as five years and perhaps materially aids in effecting a cure.
4. That newgrowths of the ovary should be removed as soon as discovered regardless of the age of the patient, since the percentage of malignant degeneration is high (22.8 per cent in our series).
5. That unilateral tumors occurred most often on the right side.
6. It may be stated further that removal of the malignant mass at the primary seat in no instance lead to a disappearance of metastatic growth elsewhere.

2000 Van Ness Avenue.

## THE LURE OF MEDICAL HISTORY

### TWO SIXTEENTH CENTURY DOCTORS ON SYPHILIS AND GUAIACUM—FRACASTORO AND FERRI\*

By S. L. MILLARD ROSENBERG, Ph.D.  
Los Angeles

THIS article may be said to be a series of comments on a dainty little 1547 edition of two famous medical works: Alfonso Ferri's *De Ligni Sancti* and Girolamo Fracastori's *Syphilis sive Morbus Gallicus*, bound together and excellently printed at Lyon by Johan Frellonius.\*

Alfonso Ferri (1515-1595) was a professor of surgery at Naples and Rome, and is especially known for his study of wounds made by firearms, published about the middle of the sixteenth century under the title of *De Sclopetorum sive archibuscorum vulneribus*; he thought such wounds to be poisonous and proposed treatment with boiling oil; he contributed much to the general study of wounds. Moreover, he invented the Alfonsine dilator and was the first to recommend the bougie for dilating the urethra, which he did in a study called *De caruncula sive callo quae cervici vesicae innascitur*, published at Rome in 1552. His treatise on guaiacum (*lignum sanctum*) and its use in the treatment of syphilis, which is the one contained in the little book first mentioned, appeared at Rome in 1537 and its full title is *De Ligni Sancti multiplici medicina & vini exhibitione*.

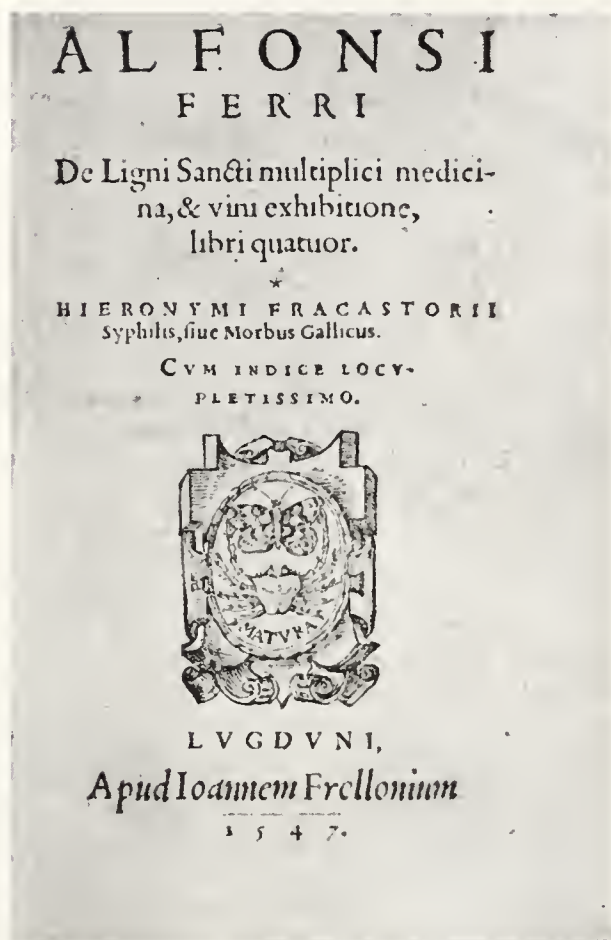
Girolamo Fracastori, or Fracastoro, also Fracastorius or Fracastor (about 1483-1553) was a Veronese poet, physician, and all-around scientist, whose versified treatise on syphilis, called by Dr. William Osler "the most successful medical poem ever written," is the work printed with Ferri's in the volume above referred to. In the first edition, printed at Verona in 1530, it is entitled *Syphilidis sive de Morbo Gallico*. Before describing it further we may mention the two most important works of Fracastori: *Homocentricarum sive de stellis*, Venice 1535; and *De contagione et contagiosis morbis et curatione*, Venice, 1536.

"The scientific reputation of Fracastorius," writes Doctor Osler, "rests upon the work *De contagione*; it contains, among other things, three contributions of the first importance—a clear statement of the problems of contagion and infection, a recognition of

\* The volume here commented upon is one of the possessions of the editor of California and Western Medicine, being a gift from Judge A. K. Nippert of Cincinnati, who in turn had received it from Doctor Vollbehr, the well-known collector of incunabula. From the letter of transmittal from the former owner, the following is taken:

"The little booklet in the original pigskin binding came from the pen of Dr. Alfonso Ferri, a famous Italian physician of that period and treats in prose the various phases of these diseases. This part of the book covers 168 closely printed pages, but the last forty pages contain a Latin poem on the same subject-matter. . . .

"The book is complete and is printed in Latin in a press in the city of Lugduni, now Lyons, France, and has an interesting printer's mark on the title page showing a crab about to envelope a beautiful butterfly. The book is a rather rare product and came to me originally as a gift from Dr. Otto Vollbehr's library of rare books, as you will notice from his dedication on the fly leaf."

Fig. 1.—Title page of Ferri's *De Ligni Sancti*.†

## Translation

Alfonso Ferrus [Alfonso Ferri]  
On Divers Medicines, the *Lignum Sanctum*  
[sacred wood, guaiacum] and the Wine  
Treatment: in four books.

Hieronymus Fracastorius [Girolamo Fracastoro]:  
Syphilis, or the Gallic [French] Malady:  
with the fullest possible Index.

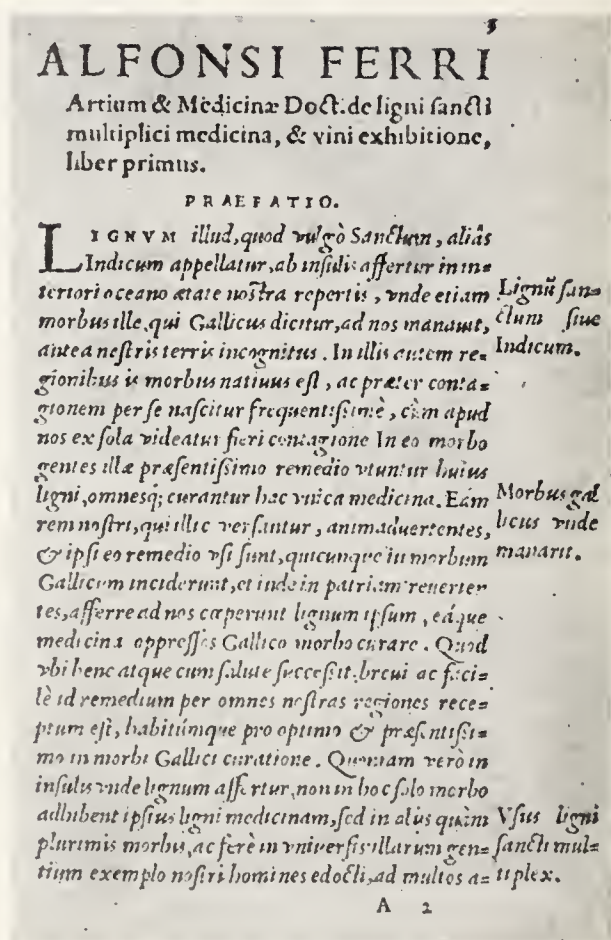
[This is followed by a colophon, or device, showing  
a butterfly and a crab, beneath which is the  
injunction: *Hasten!*]\*

LYONS  
At Joannes Frellonius  
1547

typhus fever, and a remarkable pronouncement on the contagiousness of phthisis. . . . There are three fundamentally distinct classes of infections [says Fracastorius]: (1) Diseases infecting by contact alone;

† Editor's Note.—The pages here reproduced from this book have been chosen as rather representative of its character and contents. The translations are by Professor S. L. Millard Rosenberg, direct from the Latin originals, independent of any previous translations which, if they exist, were not available here. In this connection it is but fair to Doctor Rosenberg to explain that he is not a physician, but a professor of Spanish in the University of California at Los Angeles, and books and articles which he has published have been chiefly in the field of Spanish and Latin-American literatures. He has, however, for long years been an earnest student of medical history (to which his recent contributions to *The Lure of Medical History* column bear pleasant testimony), and he comes of a distinguished family of physicians well and favorably known in southern Germany.

\* Note.—This device shows, at the top, a butterfly (*the gay life*); in the center a crab (*gnawing disease, cancer, syphilis, etc.*) and, at the bottom the word *matura* (*hasten*). That is, *you have been indiscreet and are now in bad shape; this book offers relief; hasten to make use of it*. What brevity, all in a nutshell: *Verbum sat sapienti* (*A word to the wise . . .*).

Fig. 2.—Preface to Ferri's *De Ligni Sancti*.

## Translation

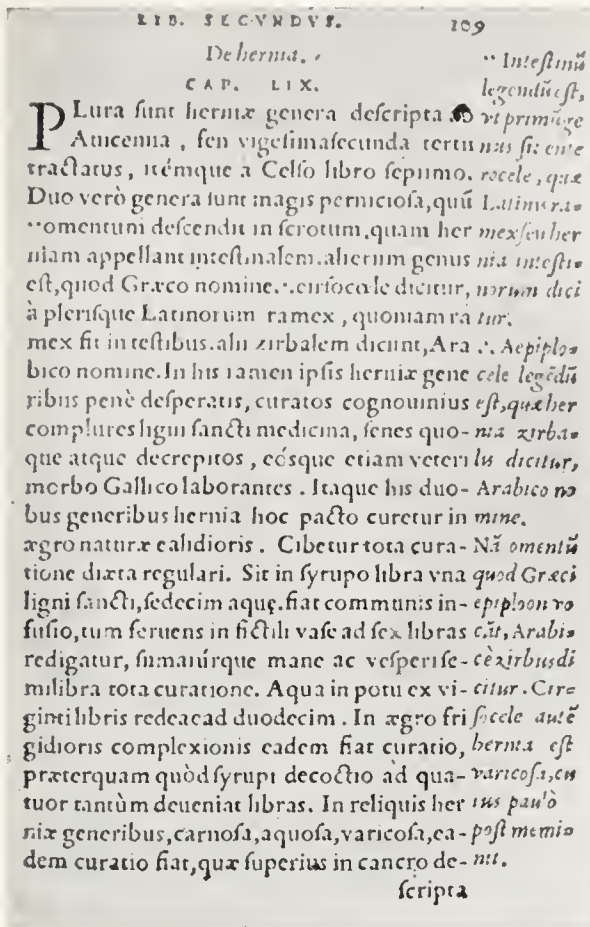
Alfonso Ferri, Doctor of Arts and Medicine,  
on the multiple medicine of *Lignum Sanctum*  
[guaiacum], and the demonstration [treatment] of Wine. Book I.

## PREFACE

That wood which is commonly called *sacred*, but also *Indian Wood*, is brought from islands in the middle of the Great Ocean, discovered in our generation, from which the disease, called Gallic, hitherto unknown, has spread to our countries. In those regions the malady is indigenous and most frequently occurs without contagion, whereas among us it appears to be contracted only through contagion. For this disease those peoples employ the ready remedy of this wood, and all are cured solely by this medication. Europeans, too, inhabiting those parts, having succumbed to the Gallic Malady, have discovered this fact and have used this remedy, and upon their return to their native soil have begun to introduce to us that wood and to heal thereby patients of that disease. After such treatment had proved entirely successful, it was readily adopted as the best and readiest throughout this continent. Since, however, in the native islands the wood is applied also for various other ailments, and practically in all diseases, taught after the example of those peoples, Europeans, to many. . . .

(2) those infectious by means of an intermediate agent—fomites, as garments, etc.; and (3) those which infect at a distance through the air, as the pestilent fevers, etc. . . . The contagion through fomites is the same in reality as in the direct. . . . The whole question of fomites he discusses with a clearness new to medicine; indeed I do not know that the word was used by any previous writer. More curious and more astonishing, he thinks, are the contagions of the third class, which act at a distance, and seem indeed to be of a different nature and to act on a different principle. The germs are more powerful and more subtle,



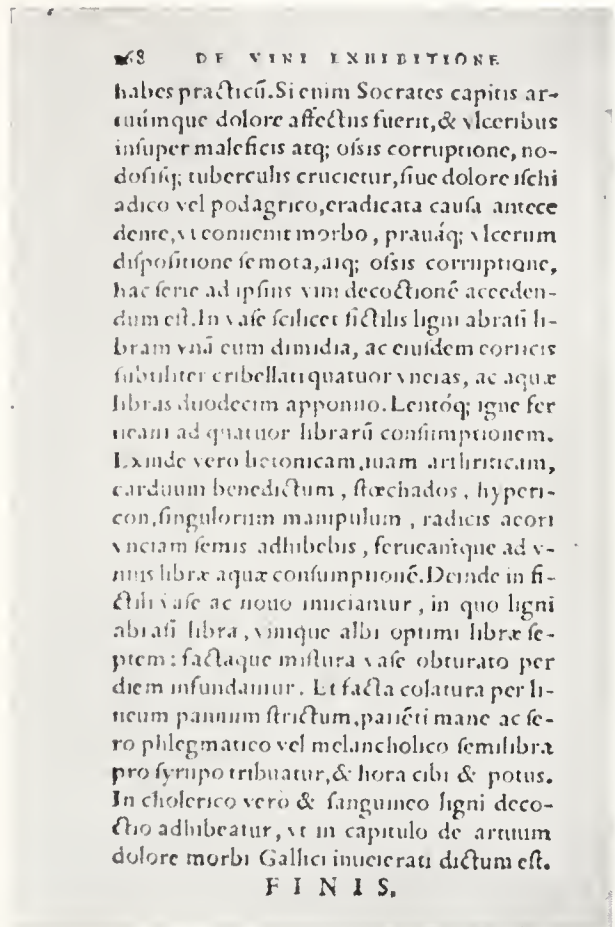
Fig. 3.—Specimen page of Ferri's *De Ligni Sancti*.

#### Translation

##### Book II. On *Hernia*. Chap. LIX.

There are several kinds of *hernia* described by Avicenna (part 22, tract 3), and also by Celsus in his seventh book; two, however, are more dangerous than the rest: one, in which the intestine descends into the scrotum—known as *intestinal hernia*; the other, called *cirsocele* [Varicocele] after the Greek but usually in Latin *ramex*, because a *ramex* [i. e., *rupture* in ancient Latin] is formed in the testes; others call it by the Arabic designation *zirbalis*. Even in these almost hopeless types of hernia we have known of several cures by the medicine of the Sacred Wood [*Lignum Sanctum*], even in the case of aged and broken men, as well as in men afflicted with Syphilis. Follow this treatment of these two types of the disease in the case of patients of a rather fiery temperament: Let them eat according to the prescribed or their regular diet during the entire treatment. Use in the syrup one pound of the *Lignum Sanctum* and sixteen of water. Let the ordinary infusion occur, then reduce by boiling to six pounds in an earthenware vessel. Have the patient take half a pound throughout the period of treatment, both morning and evening. Let the drinking water be reduced from twenty pounds to twelve. In the case of patients of cooler temperament follow the same treatment, except for boiling down the syrup to only four pounds. For other types of hernia, as for example the carnosus, aqueous, varicose, follow the treatment prescribed above for cancer. . . .

with a greater facility in penetrating bodies. They differ extraordinarily among themselves; some attack trees and grains, others animals; some attack men only, others oxen; some the old, others only the young, some males, others females. The different germs attack different organs; some the eyes, others the deeper organs, as the lungs. . . . In the second book the special fevers are considered under two divisions of nonpestilient and pestilient, the former, characterized by a milder course, embracing chiefly

Fig. 4.—Final page from Ferri's *De Vini Exhibitione* [On the Wine Treatment], in connection with his treatise *De Ligni Sancti*.

#### Translation

For if Socrates should be afflicted with pains in the head and joints, as well as with malignant protuberances and decay of the bones, and be tormented by knotty tumors and with gouty pain: after eradicating the antecedent cause in accordance with the type of disease, and removing the morbid mass of ulcers and the infection of the bone, one must proceed in this order to the distillation of the wine: Put in an earthenware vessel one and one-half pounds of scraped wood, and four ounces of finely graded bark of the same wood, and twelve pounds of water. Let this boil over a slow fire until four pounds have been consumed. Then add a handful of betonica, iva arthritica, carduum benedictum [artichoke?], stoecha [lavandula stoechas?], hypericum, and half an ounce of acorus root, and let all boil until a pound of water has been consumed. Then pour into a new earthenware vessel in which are a pound of the scraped wood and seven pounds of the best white wine; after this mixture has been made, stop up the vessel and let it dissolve throughout the day. Preparing now a plaster of linen drawn tight, give a phlegmatic or melancholic patient a half-pound of this syrup mornings and evenings and at the time of food and drink. In the case of a choleric or sanguineous patient, however, give the decoction of wood as stated in the chapter on pains of the joints in inveterate syphilis.

THE END

smallpox and measles, between which, however, he does not draw a very clear distinction. In 1505 and 1528 there appeared for the first time in Italy a disease characterized by high fever, early loss of consciousness, and a copious petechial and lenticular rash. Fracastorius gives an excellent description of it as a disease quite distinct from the other pestilent fevers, particularly the plague, with which it had been confounded, and we have no difficulty in recognizing it as epidemic or exanthematic typhus. . . . The chapter *de phthisi contagiosa* is of special interest to us as

### Ad milites Cupidinis.

Sustulerat quondam Veneris solatia quadam  
 Inuisa, inhumanis, perniciosus lues.  
 Quam vocat Hispanus Gallū, quā Gallus Iberū,  
 Imperium toto, quæ tamen orbe tenet.  
 Sensit Arabis, sensuque Geta extremus; Britānus.  
 Hanc scabiem, sensu qui tuis furta Venus,  
 Non puero parcens re sciri, te summa lēsit,  
 Tamini, quam munusculum ledere, grāde nefas.  
 Et inaequale decus nullo prohibente peribat;  
 Cumque suo nato est penè relicta Venus.  
 Ante oculos cernebat amans sui gaudia, quæ vix  
 Audebat timida folliculare manu.  
 Sic sua lugebant miser solatia amantes,  
 Donec quæ morbum, pharmaea terra dedit.  
 En tibi iam præfens medicina, Neapolis olim  
 Quæ peperit morbum, nunc tibi promittit opem.  
 Hoc sancto ligno certa, pignusque capesse,  
 Ereclanque hastam miles in arma tene.

L 5

Fig. 5.—Poem preceding Fracastoro's *Syphilis, sive Morbus Gallicus*.

#### Translation

##### TO CUPID'S INFANTRY

Once upon a time the solace of Love had been stolen by a pestilence hateful, monstrous, ruinous, that Spaniards call the Gallic and Gaul doth Spanish call, and which yet all over the world holds sway. The Arab, Goth, and farthest Briton, all have felt this itching plague, whoso hath experienced thy stolen pleasures, o Goddess of Love. Sparing of neither boy nor graybeard, thee too, o Woman, it hath wounded, Woman whom to injure the least is enormous infamy. So youthful grace without succor perished, and Venus with her son was nigh deserted: Lover saw before his eyes his Delight that scarce he durst approach with fearful hands. Thus mourned lovers miserable their solaces, till at length she who gave the ailment, Earth, did give the remedy. See, there lies before you present cure, and Naples which once did give birth to the sickness proffers now her aid. With this sacred wood battle thou, take up the fight, erect the spear, thou Warrior, and make for the fray.

one of the earliest and clearest statements on the subject . . . but on the treatment of phthisis he has not progressed beyond Galen or Celsus.

"By far the best chapter in the book is devoted to syphilis, an extended consideration in prose of the subject the poetical consideration of which as a younger man had made him famous." (This poetical consideration is the one this article referred to at the outset.) Doctor Osler continues: "The countless contributions on the subject of syphilis in the fifteenth and sixteenth centuries belong now to the musty volumes of forgotten lore; only two, possessing perennial interest, appear and reappear as witnesses to the vigor and vitality of the minds which produced them. Both were written by poets, but the better poet wrote in prose, and, while not a physician, gave one of the most realistic pictures of the disease which exists in literature." (Here Doctor Osler speaks of

### Hieronymi Fracastorii Syphilis, sive morbus Gallicus,

AD PETRUM BEMBUM.



Vi casus rerum variis, quæ semina  
 morbum  
 Infusum, nec longa vili per seculi  
 laresum  
 Attulerint nostra qui tempestatis.

per omnem

Europam, partimque Asia, Libya; per vrbes  
 Sævit in Latium verò per tristia bella  
 Gallorum irrupu, monemque à gente recepit:  
 Necnon & quæ cura, & opus quid comperit visus,  
 Magnaque in angustiis hominum solertia rebus,  
 Et monstrata deum auxilia, & data munera celi,  
 Hinc canere, & longè secretas querere causas  
 Aera per liquidum, & vasti per sycdera Olympi  
 Incipiam, dulci quando mutatus amore  
 Corruptum, placidi naturæ suavis horti  
 Floribus inuitam, & amantes intra Camæna.  
 Bembe decus clarum Ausonia, si forè vacare  
 Consilium Leo te à magnis pueris, & alta  
 Rerum mole sinis, totum quæ sustinet orbem:  
 Et inuat ad dulces paulum secedere Musæ:  
 Ne nostris contemne orsus, medicumque laborem,  
 Quicquid id est, deus hac quodā dignus? Apollo ē:  
 Et parum quoque rebus inest sua sepe voluptas.  
 Scilicet hac tenui rerum sub imagine multum

Natura.

Fig. 6.—First page of Fracastoro's *Syphilis, sive Morbus Gallicus*.

#### Translation

##### Hieronymus Fracastorius: Syphilis, or the Gallic Malady.

ADDRESSED TO PIETRO BEMBO.

What various chances, what seeds, have brought the unaccustomed disease unknown to all throughout long centuries, that in our day over all Europe and parts of Asia and the cities of Africa doth rage, and hath broken into Latium in the unhappy wars of the Gauls [French] and taken its name from their race; yea, and also the care and alleviation use has taught, and the craft of men in straits displayed, with the manifest aid of gods, the gifts vouchsafed of heaven, I now to sing and into the deep-hidden causes inquire through the liquid air, and the constellations of wide Olympus shall begin, since taken with sweet love of its novelty, we the placid gardens of nature summon with sweet flowers, yea and the Muses, too, who love the wonderful.

O Bembo,\* bright glory of Ausonia [Italy], if Leo\* for a short space grant thee from high consultations and the lofty weight of affairs to rest, wherein he doth support the world entire; and if thou wilt a while retire to the sweet company of the Muses: do not despise my assays and modest labor: however slight it be, once the God Apollo thereto did condescend, and little things too have often their own proper pleasure in themselves. Beneath this slender form is much of Nature found. . . .

Ulrich von Hutten's famous treatise on the then (1514) new drug Guaiacum (*lignum sanctum*) and its use in syphilis.) "The other contribution is the celebrated poem of Fracastorius. Next to the famous *Regimen Sanitatis* of the School of Salerno, it ranks as the most popular poem in medical literature. . . .

\* The reference is to Cardinal Pietro Bembo, one of the most celebrated Italian scholars of the sixteenth century, and secretary to Pope Leo X. It is known that the Cardinal was one of Fracastoro's intimate friends.



Apart altogether from the poetical interest, which after all is subsidiary, the work is of the greatest value as a contemporary picture of the disease, embodying the opinions of an intelligent observer upon its origin. In one other point it is notable. The word "syphilis,"\* invented by Fracastor for the disease, occurs in the poem as the name of one of the characters, a shepherd. . . . It had been known by many names—*morbus gallicus*, *mal Français*, French pox, the Neapolitan disease, *morbus venericus*, etc.; but from this time the new name became common and gradually came into general use." (*Proceedings of the Charaka Club*, Vol. 11.)

It is tempting to go on quoting Doctor Osler, but space demands omission of his résumé of the poem: its author's theory of the origin of syphilis in the malign influence of the conjunction of Mars and Saturn; the complete and accurate description of the symptoms; the treatment, diet; the virtue of mercury, but most of all the virtue of the "sacred tree" the *lignum sanctum*, the description of guaiacum, its preparation and administration—a fascinating mixture of astrology, mythology, and truly scientific observation.

Referring to Fracastor's theory of the origin of syphilis, it may be interesting in that connection to recall the following:

When King Charles VIII of France invaded Italy in 1493 he found no resistance, but he had to fight his way out. His entry has been called "the war of fornication" because of the chiefly nonmilitary activities of his army, the only ones that make his Italian expedition of great interest today. For it was a rapidly dwindling army that finally escaped over the Alps, leaving its baggage but carrying away the frightful impedimenta of syphilis and other diseases of its loose living.

The contemporary Spanish geographer Enciso wrote: "Never did so many die at one time as then. And as they died covered with abscesses and disfigured by stinking gangrene, and all social classes being affected, the great mortality of notable and powerful persons was specially observed and the nature of their death, with their noses and throats gnawed away by horrible sores. Naturally an explanation was sought for such an astounding mortality among the rich and lordly, and it came to be the settled conviction that they had been poisoned, for political and other reasons. Everybody thought the sores were due to the excess of poison escaping through the skin. Many deaths attributed to the Borgias on this account were really due to syphilis, which naturally fed by preference on the upper classes."

By a curious coincidence, in that very year of 1493 Columbus returned from his first voyage to the New World. This is noted by the Spanish novelist Blasco Ibáñez in his novel *At the Feet of Venus*, where he says: "The strange thing [about the violent outbreak of syphilis in King Charles's army] was that at the very time when the sexual epidemic was spreading throughout Europe, the Spanish discoverers found the disease in America, and they gave it the name of 'mal de bubas' or bubonic disease. The coincidence for a long time caused the poor aborigines

of the New World to be charged with giving to the Old World the horrible gift of syphilis. As to the truth or falsity of this charge there is a difference of opinion, and the matter is not yet settled. Neither is it settled whether, as between France and Italy, the disease first appeared in the one or the other. The Italians call it the 'French disease' or the 'Gallic disease,' while the French call it the 'Neapolitan disease.'"

Blasco Ibáñez here assumes, as many do, that the Spanish discoverers "found the disease in America"; but this has been disputed and the opposite affirmed: that the Spaniards took it with them from Europe, where, it is said, it had long existed under the name of leprosy, with which it was confused.

Besides the charming essay by Doctor Osler, there are at hand two others I may mention. One is an illustrated article by Dr. Arnold C. Klebs in the *Bulletin of the Johns Hopkins Hospital* for November 1915, entitled "Iconographic Notes on Girolamo Fracastoro"; and the other in the *Annals of Medical History*, Vol I, No. 1, is by Charles and Dorothea Singer\* of Oxford on "The Scientific Position of Girolamo Fracastoro, with special reference to the source, character, and influence of his theory of infection." This very full and scholarly study, with its careful substantiation in footnotes and bibliography, is worthy of reading not only for the history of syphilis, the history of the theory of infection in general, and the large part played in it by Fracastoro, but also for the brief prefatory sketch of his contributions to other sciences than that of medicine; for Fracastoro was a fellow student of Copernicus in astronomy and probably the first man to espouse his heliocentric theory; it is probable that the first orrery was made for him rather than for the English earl; he was the first to apply the word "pole" to the earth; he was the first to suggest, in 1549, the cartographic projection that came to be called Mercator's; he was the first to introduce to Europeans the statement of the thirteenth century Arab, Kazrini, that western Europe was subject to secular changes of elevation, an idea which, elaborated by Niels Stensen in 1669, laid the foundation of modern geology. Fracastoro was one of the few of his day who had any conception of the nature of the refraction of light and his views were hardly improved upon until the researches of Maurolico, about 1575; Fracastor was probably the first to suggest the combination of lenses as an aid to vision, and thus gave the first hint in literature of the construction of a telescope: just as "the moon appears larger and nearer for the same reason that objects do in a depth of water, in the same way glasses may be made of such density that if anyone looks through them at the moon or at any star they appear near and hardly higher than the steeples." The treatment of refraction by this versatile man is accompanied by numerous geometrical drawings and demonstrations.

\* The word "syphilis" in Greek appears to imply love of swine.

\* Doctor Singer will be remembered for his 1930 lectures at the University of California Medical School.

And finally I wish to call attention to an article on *Fracastoro and Syphilis* by Dr. W. K. Stratman-Thomas of New York in CALIFORNIA AND WESTERN MEDICINE for October 1930 (page 739), who states with particular clearness the position of Fracastoro as to the probable origin of the disease and, in general, gives a summary of the articles I have already mentioned, together with reproductions of two portraits of the great doctor and a facsimile of the first page of the famous poem.

This paper of mine has been almost exclusively about Fracastoro, and very little about the author of the first work contained in the precious little volume discussed in the present article—Alfonso Ferri; but the fact is that thus far I have learned very little about him; perhaps later I may be able to supplement the present review with a sketch of this artium and medicinae doctor.

4508 Willowbrook Avenue.

### NEVADA—A BRIEF MEDICAL HISTORY AND SURVEY\*

By EDWARD E. HAMER, M. D.  
Carson City, Nevada

NEVADA as a territory had no law governing the practice of medicine. It was not until January 28, 1875, that any kind of a law governed that profession. The law passed by the legislature of that year was a very incomplete one regulating the practice of medicine and surgery.

#### FIRST LICENSURE LAW OF NEVADA

This first law, passed in 1875, demanded only that a person to practice medicine in Nevada must have received a diploma from some regularly chartered medical school, said school to have a bona fide existence when the diploma was granted. Each physician entering Nevada, or who at that time resided in Nevada, had to file for record with the county recorder in the county in which he practiced a copy of his diploma and, at the same time, exhibit the original. This first law did have a penalty, however, for practicing in violation of the foregoing procedure. Section 4 of the law provided: "Any person practicing medicine or surgery in Nevada without complying with Sections 1, 2, and 3 shall be guilty of a misdemeanor and shall be punished by a fine of not less than \$50 nor more than \$500, or by imprisonment in the county jail for a period of not less than thirty days nor more than six months." The duty of arresting anyone not complying with the Act was given to the police, sheriff, or constable, and the one making the arrest was entitled to one-half of the fine collected.

#### REVISED MEDICAL PRACTICE ACT OF 1899

On March 15, 1899, a new law was passed creating the Board of Medical Examiners, consisting of five members, who were physicians who had been duly licensed as such from some legally

chartered medical college of the United States and who had been in active practice in Nevada for the preceding five years. Three of the board were to be appointed from the school of medicine known as the regular school, one from the homeopathic school, and one from the eclectic. The members appointed by R. S. Sadler, Governor of Nevada, were J. Guinan of Carson City, S. L. Lee of Carson City, P. T. Phillips of Reno (now of Santa Cruz, California, and an ex-president of the California Medical Association), George Fee of Reno, and Philippine Wagner of Carson City.

The first meeting of this Board of Examiners was held on the first of May, 1899, at Carson City, Nevada. The meeting was called to order, with the Governor in the chair, and Dr. S. L. Lee was elected temporary chairman. They then proceeded to elect a permanent chairman or president of the Board of Medical Examiners and Dr. P. T. Phillips† received the honor of being the first president of the Nevada State Board of Medical Examiners, with Dr. S. L. Lee as secretary.

The law under which they worked at this time, or the law passed March 15, 1899, among other things provided that a temporary license to practice medicine in Nevada could be issued. This practice, however, was discontinued in 1905.

Since the creation of a Board of Medical Examiners in Nevada, 1305 licenses have been issued by this board. A member of the Washoe County Medical Society held and still holds License No. 1 of the State Board of Medical Examiners of Nevada. The colleague holding that license is Dr. W. H. Hood, a graduate of the medical department of the University of Michigan. His certificate was issued to him while he was practicing at Battle Mountain on May 29, 1899.

The laws governing the practice of medicine in Nevada have been, no doubt, as good as they could be, due to the fact that throughout most of the area of the state the population was very scarce. One of the features of the law, until the last session of the legislature, was that the Board of Medical Examiners of the State had to accept credentials from any legally recognized medical college. A bill was introduced into the last legislature which changed the wording to "He must be a graduate from a medical college accepted as reputable by the Board of Medical Examiners." At a meeting of the present Board of Medical Examiners it was decided that no Class C colleges be recognized by this board. That has eliminated from Nevada graduates from six existing medical colleges, all of them Class C colleges and most of them recognized as so-called diploma mills. We hope to bring about higher standards among our profession. It is worthy of note that during this past year Nevada has refused admittance, either by examination or by reciprocity, to at least twenty-four applicants who are graduates of these schools.

\* Read before the Washoe County Medical Society, December 9, 1930.

† Editor's Note.—Dr. P. T. Phillips, now practicing in Santa Cruz, California, at the time of this writing and for a number of years, has been president of the Board of Medical Examiners of the State of California.



## ILLEGAL PRACTICE IN NEVADA

There is yet a great deal to be done to improve the standards in Nevada. First, the charlatan and quack should be eliminated. We find them even in our fair city of Reno, our metropolis, plying their trade and extracting from the public probably from seventy-five to one hundred thousand dollars annually that should be going to legitimate practitioners. It should not be much trouble to eliminate this element from the territory of this county society. It seems to me that evidence of practicing medicine without a license could be obtained, and I believe it is the duty of every member of the Washoe County Medical Society to try to get that evidence and lay it before the Board of Medical Examiners of Nevada so that we can proceed to have arrested and bring about the prosecution of the offenders. If you will recall, at the last session of the legislature a bill was passed and put into practice which provided for the collection from every man holding a license in Nevada, and who cares to be in good standing in our profession, the sum of two dollars annually. Some of the members of this society, I find, have never understood why this law was put into effect. The principal idea of our annual tax is for the accumulation of a fund whereby we can clean up our profession and eradicate illegal practitioners. We have revoked the license of one and have driven others out of Reno, and the Board of Medical Examiners of Nevada stands ready to spend every dollar of that accumulated fund to protect the people against quackery where it is being practiced. There is no doubt that there are other misdemeanors going on in the practice of medicine, especially in this city. I have heard it said that certain individuals live in boarding houses in this city for a period of three to six months who may be well versed in the art of medicine but who do not care to spend \$100 for a reciprocity certificate. Gossip says that these men at times practice their profession in a manner which might well be termed "curbstone practice." They are careful not to write prescriptions and sign them with their names, but they will procure from the druggist certain medicines and dispense them to their patients, and no doubt collect not only for the medicine, but for their services.

## PROPORTION OF PHYSICIANS IN NEVADA

Nevada, as a whole, considering its population, is very well taken care of professionally. There are at the present time 140 physicians practicing in Nevada. The population of the state is 91,058, so that means one physician to every 651 persons. This corresponds very closely to the profession in other states. Washoe County has a population of 27,158, with about forty-six physicians, giving them approximately one physician to every 600 persons. These figures, perhaps, are not accurate, because the population includes the Indians, and they are taken care of to a great extent by government agencies. Elko County is large in area with a population of about ten thousand, with physicians at Wells, Montello, Jarbidge,

and Carlin. The rest of the county is taken care of by the physicians of Elko. White Pine County is very well cared for because most of the inhabitants are employed by the Nevada Consolidated Copper Company, who have a modern company hospital which provides adequate treatment. Physicians are also located at McGill, Kimberly, Ruth, and East Ely. Lincoln County has its physicians at Pioche and Caliente. Nye County does very well with its Miners' Hospital, which is operated by Doctor Craig. There is also a fairly good county hospital at that point, and I believe the county is well taken care of from the standpoint of the number of physicians. Lyon County is well taken care of by its physicians at Yerington and Smith. Clark County must be very much overrun by the profession. The Board of Medical Examiners of Nevada has issued a number of licenses to physicians who went to Las Vegas to practice their profession, believing that there would be an increase in the population because of the government work at Boulder Dam. The medical work there, I believe, is to be let on contract by the government, and there will be need for more physicians when that work is gotten under way, as they expect to employ three to five thousand men on construction work. Humboldt County has four physicians at Winnemucca and one located in the northern part of the county at McDermitt. In Pershing County we have Doctors West, Gill, and Smith in Lovelock, with Doctor Webster in Paradise Valley. Eureka County has one physician, Doctor Hurley at Eureka. That is quite a territory for one doctor to cover, and there is no doubt that the location of a doctor at Palisade would not only be pleasing to the people of that community, but it would be profitable to the physician locating there. Lander County has a doctor at the county seat at Austin and another at Battle Mountain. In Mineral County, we find Doctor Smith at Mina. Churchill County covers quite an area, and there is no physician between Fallon and Austin. This is a considerable distance and sparsely populated. Douglas County is taken care of by Doctor Morley at Gardnerville and Doctor Harrison at Minden.

NEED OF A COMMUNITY HOSPITAL FACILITIES  
AT RENO

I believe we have in the Washoe County Medical Society able representatives of the medical profession. I believe that Reno is handicapped to a great extent by the hospital facilities offered. It seems to me that the majority of patients whom you and I treat are not financially able to stand the expense imposed on them by the average hospital. These patients can pay a certain sum without embarrassing themselves and families for hospital care. This class of patients do not feel like becoming charges of the county hospital as charity patients, neither do they feel that they can afford to pay the cost of care as charged by the privately owned hospitals. Therefore, I believe that this medical society will greatly bene-



fit when the present plans for a community hospital are developed. Such a hospital could have rooms and bed spaces of different prices and the patients could have the care of their own physicians, and they would not feel as paupers. I am sure that the members of this society would be more likely to receive their compensation for services if such a hospital were established which did not take all the money that the patients had for care. In the past two years I have sent, or taken, some patients to San Francisco against my wishes, but it was the desire of the patients to go there, claiming that it was cheaper to go to San Francisco than it was to go to our local hospitals. This only shows that it is important that a hospital be established whereby cheaper rates of service can be offered certain classes of patients.

#### NEED OF A FULL-TIME HEALTH OFFICER

I believe there will be established in Washoe County what is known as a full-time county health unit. This unit will consist of a full-time health officer assisted by two public health nurses. The establishment of this unit could no doubt be brought about, due to the fact that one-half of the money paying for this service in this county would be borne by outside agencies.

#### PLACE OF THE UNIVERSITY OF NEVADA

I do not believe that prevention of communicable diseases has been exercised to the extent that it should have been during the past, and by having a county health unit to take care of quarantine it will relieve the local men of that embarrassment, besides giving a more thorough check on the sanitary conditions of the county. Another thing that appeals to me as being very important is the placing of the Hygienic Laboratory as well as the Laboratory for Pure Food and Drugs, under the direction of the department of health instead of the university. All states in the United States maintain a Public Health Diagnostic Laboratory with the exception of one. In eight of the states it is maintained within the university. When the laboratory is placed directly under the control of the state health department, experience has shown that it is followed by an immediate increase in the volume of work accomplished, due, no doubt, to the state health department's more intimate contact with the physicians throughout the state. Some of the work which is being charged for as the laboratory is now operating could be given the physicians free. In addition to that, I believe that the laboratory should be able to manufacture vaccines, toxin, antitoxin, and similar products for free distribution to the local health officers. The fact that during the year 1929 only 81 suspected diphtheria cultures and 250 smears for tuberculosis were examined, out of a population of nearly 91,000, clearly demonstrates that the 140 practicing physicians in the state are not benefited by the state's public health laboratory to the extent that they should be. Hence, it is recommended that much greater effort be made to convince them of its importance.

The laboratory is maintained as a department of the university in Reno. Its location is advantageous, inasmuch as it is nearer the state's population center than it would be if located elsewhere. However, for reasons mentioned, I believe it should be transferred to the state health department and that the appropriation for its maintenance be made to that department. If such is brought about, and the university president as well as the heads of the laboratory are willing that it should be brought about, I will be able to secure, through the state health department, from the Rockefeller Foundation a sum of money equal to at least one-half of the appropriation, which is about \$5000 each year. With these funds more technicians and more equipment could be employed. I would appreciate it if the Washoe County Medical Society would indorse the transfer of these two laboratories to the department of health of the State of Nevada where they rightfully belong. President Clark told me that if it were desired, and if we could run the laboratory as well as it is now being operated, that he would not only consent to the change but would recommend that it be placed under the state department of health.

#### NEVADA MORTALITY STATISTICS

It will be of some interest to you to know that in the year 1929 the deaths in the State of Nevada per 1000 population were reduced to 13.3 from 16.6 in 1928. These statistics for the year 1930 are not yet available.

In closing this paper I will attempt to give you a few statistics on deaths in Nevada up to December 31, 1929. In pulmonary tuberculosis we find the state had fifty-four deaths—thirty-five of that number were of the white race, fourteen of the red race, four of the yellow, and one black. This is quite unusual, for in former years the deaths were more than 50 per cent of the red race. In cancers, those of the stomach and liver led the list; thirty-three of these patients died, all white except one. There were four cancers of the mouth, eight of the intestines, four of the female genital organs, and seven breast cancers. No statistics on deaths would be complete in the present age without deaths from alcoholism, so we find fourteen died from that disease and ten from cirrhosis of the liver. There were sixty-two deaths from cerebral apoplexy, one hundred and seventy-five from diseases of the heart, and one hundred sixteen deaths from pneumonia.

You gentlemen who practice surgery will be interested to know that Nevada lost nineteen cases from appendicitis, eight of them being in Washoe County. There were forty-one deaths from nephritis and twenty-four deaths from premature births. Among the suicides, which numbered twenty-eight, fifteen were caused from fire-arms, four from strangulation or hanging. There were seventeen fatal mine accidents, thirty-seven fatal automobile accidents, and fifteen homicides.

Carson City.



## CLINICAL NOTES AND CASE REPORTS

### CARCINOMA OF THE LARYNX—ITS TREATMENT BY DIATHERMY

By HARRINGTON B. GRAHAM, M. D.  
*San Francisco*

HAVING made a diagnosis of carcinoma of the larynx, there immediately present themselves to the surgeon two problems which must be met at once:

1. Is the case operable, and by what method?
2. If inoperable, how best can one ease the patient's last days?

Diathermy has been used in the larynx for a great many years and has become progressively a method of choice in early cancer. My attention was called to its value mainly through a success in its use in a nonlaryngeal malignant growth, one involving the left tonsil with loss of the uvula and a part of the soft palate. Diathermy and radium were applied here some fifteen years ago with entire success, the patient being alive at the present time.

Succeeding this I used diathermy in a case of cancer of the vocal cord in a lawyer, after removing as much of the growth as possible by a double curette. This was all done by the direct method, per oram, under general anesthesia. At the time the whole vocal cord appeared to have been removed. Three months after the operation the patient appeared in the office with a normal voice and vocal cord and stated that he was carrying on his work in court with perfect ease. He died two years later of pneumonia, but up to the time of his death there had been no recurrence.

It is quite possible to apply the diathermy to any part of the larynx by the indirect method under local anesthesia, in this way producing a coagulation which is sufficient to destroy any small carcinoma in the early stages without destroying the function of the larynx or taking the chance of distribution of cancer cells by laryngofissure, as Mackenzie advocated at the Copenhagen Congress. In case the infiltration is more extensive, involving the cartilaginous wall, I doubt if fulguration is sufficient. Here a laryngofissure would not help, laryngectomy alone being indicated.

It seems to me, therefore, that diathermy is the method of choice in all cases of early cancer of the larynx when close inspection is not necessary. There is no objection to applying the diathermy under general anesthetic, even under ether, if the precaution is taken to allow the patient to take several breaths before turning on the current so as not to cause an explosion of the ether. In case a bronchoscope is used, the needle should be well covered with rubber to the tip, only a small portion being exposed and the needle being introduced well beyond the end of the scope.

In inoperable cases, with the growth practically occluding the passage, I have found diathermy of especial value. In these cases an extensive coagulation may be carried on with deep penetra-

tion of the needle into the tissues under local anesthesia and morphin. The amount of destruction that takes place frees the larynx of the obstruction, gives the patient air without a tracheotomy and eventually may produce a scar tissue which relieves the situation for years. There may be pain subsequent to the operation which may be controlled for a few days by morphin, but some of the patients do not complain at all.

This, in my hands, has been a much more humane method than an attempted laryngectomy with all its attendant unpleasant sequelae, and the lack of a tracheotomy tube is much appreciated by the patients. It is a simple matter to do this work; a repetition is just as simple and the patient may be carried over a terrible period in his life when breathing is generally extremely difficult and communication just as annoying. It is astonishing how much room may be obtained in a couple of days when only one side of the larynx is treated in this way, decreasing the pain and limiting the difficulty in swallowing.

490 Post Street.

### A SYRINGE FOR INTRAVAGINAL TREATMENT

By CLAIR WILSON, M. D.  
*Los Angeles*

BELIEVING that any instrument materially assisting in the treatment of infections of the female vaginal tract is worthy of being brought to the attention of the profession, the following syringe is presented:

It is moulded black bakelite, 19.5 centimeters long when loaded, 15.5 centimeters long after injection, and is generally 2 centimeters in diameter. There are four parts: an upper and lower hollow part, forming the barrel; an upper and lower solid part, forming the plunger. The lower part of the barrel or chamber has a capacity of 6 cubic centimeters, which amount seems sufficient in any case, but less may be used if desired. The chamber is perforated at the remote end by five small openings, one of which is in the exact center of the tip; the other four are arranged radially around the central perforation, one centimeter from it and about equidistant from each other, drilled at an angle of forty-five degrees. The upper part of the plunger serves as a handle for the lower part or piston, which, when compressed, expresses the material from the chamber. The parts are screw-threaded, making assembly quick and easy.

The syringe when assembled, or when the chamber is removed for filling, is so constructed that it is impossible for the plunger to fall out from either end; also, when the filled chamber is attached, the face of the piston is in direct contact with the medicament. This eliminates all air space and the possibility of air injection.

To load syringe remove the lower part of the barrel, fill this chamber from a collapsible tube of the preparation indicated, then reattach. When this is done the instrument becomes almost self-lubricating, as sufficient material exudes through the perforations to insure easy passage into the vagina. More may be expressed, if desired, by gentle pressure.



Syringe for intravaginal treatment.

Treatment may be administered under direct vision through a vaginal speculum, or by simply introducing the syringe until the tip is in contact with the cervix. Pressure by one finger on the concave proximal end of the plunger is sufficient to completely express the contents of the chamber against the parts being treated.

The appliance is easily cleaned with soap and water, and may be sterilized by any method except the prolonged application of heat. It is a simple device, foolproof, positive in action, and with ordinary care will last for years.

#### MEDICAMENTS

The drugs used topically in the present-day practice of gynecology and venereology are all more or less efficient. Most any of them may be incorporated in a gelatinous base, and their value seems to be enhanced by so doing. This is due to the fact that the medicament remains in intimate contact with the tissues until removed, which is a much longer time than is possible with aqueous solutions, and in a better physical state than oily or greasy substances. Being water soluble, it is compatible with vaginal and cervical secretions, and is readily removed when desired.

Of the many preparations tried, two were meritorious enough to warrant devising the instrument described for their proper application. They have continued to prove of sufficient value to justify calling them to the attention of those interested in this field.

For gonorrhea, and cases of leukorrhea having a high count of pyogenic organisms, the preparation of greatest value is neutral acriflavine. A strength of 1 to 1000 in a modified mucilage of tragacanth base (gum tragacanth, 15 grams; glycerine, 85 cubic centimeters; distilled water to make 1000 cubic centimeters, slightly alkalized by the addition of one-half per cent sodium benzoate which also serves as a preservative). This jelly is put up in 90 cubic centimeter collapsible tubes for ease in filling syringe.

The central perforation in the syringe usually ejects sufficient jelly to treat the cervical canal. If necessary it may be readily filled by means of a metallic tip screwed directly to the tube, or an ointment depositor having a cervical tip. The urethra, if infected, may be injected with this formula and allowed to remain until urination.

For simple leukorrhea and excessive secretion the preparation of choice is three per cent tannic acid in the same base. Treatment is completed by application of a tampon or vulva pad. It may well be left in all night and removed the following morning by a copious warm douche.

The syringe, with these or other preferred formulae, may also be used with pleasing results in the treatment of infected cervical lacerations, cervicitis, erosions, ulcerations, and vaginitis. It offers an excellent method for applying a simple

lubricating jelly in cases lacking sufficient lubricating secretion, in vaginismus and dyspareunia, and where there is disparity in the relative size of the sexual organs.

The treatment is quick and efficacious in office practice. Being simple and foolproof, it is ideally adapted for sustained treatment by the patient at home between office visits.

746 Francisco Street.

#### A NEW ORTHODIAGRAPH

By L. M. ROSE, M. D.

*Santa Clara*

THE object in reporting this new method in outlining the shadow of the heart and vessels during fluoroscopic examination is because of the simplicity in construction of the apparatus, economy, exactness of shadow, rapidity in getting a permanent record of the heart and vessels, and easy attachment and detachment of the apparatus to any fluoroscopic table.

Orthodiagraphy is not new; there are several methods available to outline the cardiac shadow fluoroscopically. The apparatus may be expensive and only applicable to a certain table.

Pin-hole opening of diaphragm may be used with a fixed screen. The disadvantages of this method lie in the impossibility of seeing the whole cardiac shadow during the time of tracing the borders of the heart and vessels, and of moving the screen to examine other parts of the body. A small piece of lead may be attached to center of the tube and follow borders of cardiac shadow,

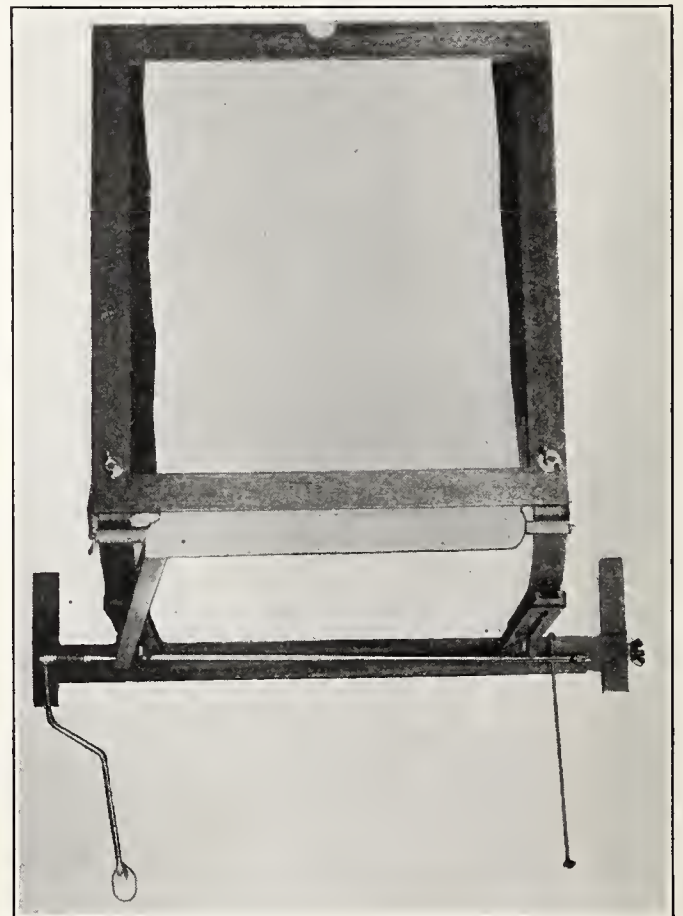


Fig. 1.—Frame carrying roll of paper on which cardio-gram is recorded.



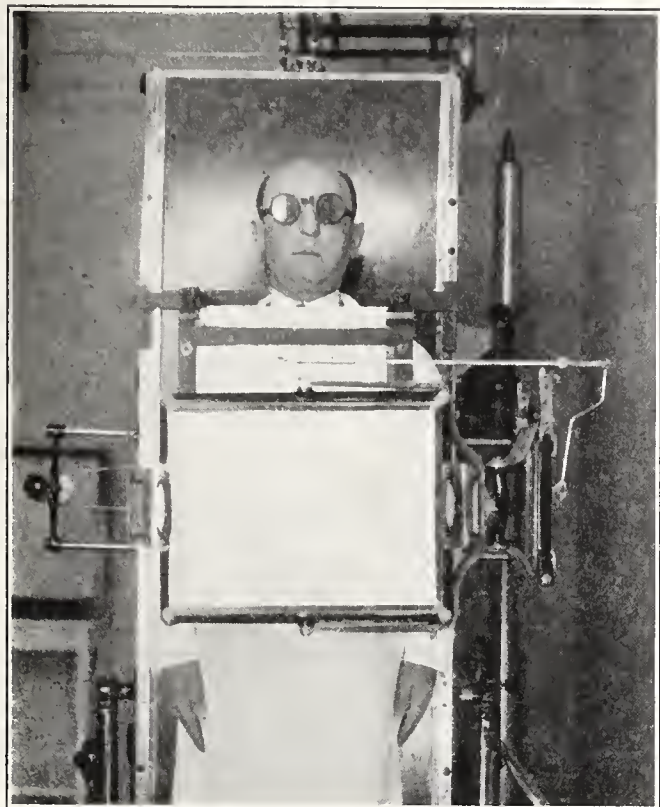


Fig. 2.—Apparatus and patient in direct anterior position.

but one still has to use a fixed screen and mark the shadow upon the screen or directly on the patient's chest (which is a curved surface).

The apparatus here described (Fig. 1) shows a frame supporting a roll of paper which can be made to fit any table. The frame when attached to the table is made to slide in a vertical and a horizontal position to accommodate the patient's posture during examination. The arm and pencil holder can be attached to any tube carriage; pencil is fixed in line with central rays of tube. The frame is placed between the patient and the fluoroscopic screen; the pencil between the frame and the fluoroscopic screen. During fluoroscopic examination the frame and roll of paper is fixed; the pencil moves with the fluoroscopic screen. By pressing a spring lever of the pencil arm, the shadow of the heart and vessels is outlined with pencil dots on the paper which is fixed on the frame in front of the patient.

The apparatus can be made by any good mechanic to fit almost any fluoroscopic unit.

Rose Building.

## A NEW SPLINT FOR FINGER TRACTION

By A. J. LANGAN, M. D.  
San Pedro

THE splint discussed below was devised for the purpose of traction in fractures of the bones of the hand. It has been my experience in fractures of the hand that the best results are obtainable from splints where steady traction is maintained. More difficulty is encountered in compound fractures or in fractures when several fingers are broken. After the even balance of muscle "pull" has been disturbed by the fracture, the tendency to displacement is very great, which

can readily be understood when the size of the muscles involved is taken into consideration.

For several years I have used the banjo splint with fixation to the forearm and traction produced by adhesive (mole skin) around the affected fingers and with attachment to the outer rim of the banjo splint by rubber bands or rubber obtained from the tubes of automobile tires. It has been my experience with such a splint that daily attention to the traction and, in most instances, frequent changes of the traction are necessary. Shifting of the traction took place because of the forearm end of the splint slipping down.

To obviate this error I have devised the splint pictured below. As shown, the center of fixed traction is from the arm and no slipping of the splint forward toward the hand is possible after the splint is properly placed.

The splint is made of light aluminum metal, nondeflecting to x-ray. There is a joint at the elbow which can be locked, so as to hold the elbow at right angles' flexion or it may be left movable for free use of the elbow. The lower half of banjo circle is movable, so that the angle of traction may be changed at will. There are a

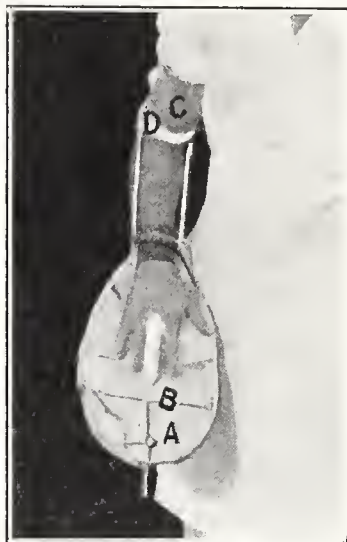


Fig. 1.—(a) Set screw which can be adjusted as traction is needed. (b) Rubber band traction connected to finger by mole skin or adhesive. (c) Arm piece which acts as a fixed center for traction and prevents splint from slipping forward. (d) Adjustable connection which may be set at right angle or any position suitable to the case.

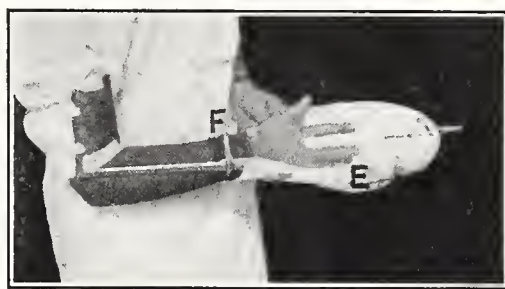


Fig. 2.—(e) Adjustable connection, allowing lengthening of banjo portion of splint. (f) Leather wrist band fixing splint at wrist.

series of set screws attached to the outer rim of the splint which tighten the traction by simply turning the screw, as is done with a violin string. I have found the splint especially adaptable to compound fractures where frequent changes of dressing are needed. If the finger is too badly torn to allow for adhesive traction, the traction may be made through a hole in the finger nail. The splint is especially adaptable where several fingers are fractured.

A hammock of muslin or gauze is swung under the hand and forearm.

Bank of Italy Building.



# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## THE USE OF RADIOTHERAPY IN ACUTE PYOGENIC INFECTIONS

JOHN D. LAWSON, M. D. (Woodland Clinic, Woodland).—The treatment of acute pyogenic infections through the use of radiotherapy is not new, but recently has received considerable attention with the result that it has come into more general usage.

The more common acute infections in which roentgen therapy has been utilized with success are erysipelas, furunculosis, carbuncles, cellulitis, lymphadenitis, lymphangitis, parotitis, and acute pelvic inflammatory disease. In all of these conditions we find a rather remarkable response to the use of this physical agent, provided the disease has not progressed to suppuration.

If necrosis has already occurred and the lesion has become entirely localized, it has not been our experience that any favorable results are obtained. If, however, extension is continuing about a necrotic area the effect of radiotherapy is quite satisfactory as it will inhibit further progression.

In the treatment of acute pyogenic infections by means of roentgen rays the point of first importance is the selection of cases. This mode of therapy will certainly come into disrepute if attempts are made to produce results in instances where necrosis and suppuration have already occurred.

The response to irradiation in all of the disorders noted above is prompt and satisfactory. It is true that certain lesions respond more rapidly and more readily, as would be expected by reason of the involved tissue. In cases of adenitis where recovery is quite remarkable and regression of the glands very rapid, this would be expected by reason of the type of structure in which the infection is located, as one would normally expect more rapid regression than where the skin is involved as in erysipelas. However, taking the group as a whole, it may be said that radiotherapy is the treatment of choice and that the results obtained by this method are not approached by any other type of treatment.

In administering radiotherapy it has been our efforts to apply a dosage of approximately one-third of an erythema dose. By this is meant that the lesion itself receives that amount of radiation. If the infection is located a considerable distance below the surface, as is the case in pelvic inflammatory disease, heavy filtration and high kilovoltage will be necessary. If the lesion is located on the skin, little or no filtration and much lower kilovoltage may be utilized. It is very essential that a zone about five centimeters wide be allowed beyond the farthest extension noted

and included in the irradiated area. If radiation is limited to the lesion itself a high percentage of patients will have further extension, whereas if the application includes the larger area this will not occur.

It has not been our practice to reirradiate within forty-eight hours, but if the lesion has progressed and there is still no evidence of necrosis at the end of that time the same dosage is repeated.

As stated before, the results obtained in this field are such as would convince the most skeptical, and it has been routine at the Woodland Clinic for several years to refer all acute non-suppurative pyogenic infections to the radiotherapy department for treatment.

\* \* \*

MOSES SCHOLTZ, M. D. (1930 Wilshire Boulevard, Los Angeles).—The term "radiotherapy" colloquially implies x-rays and radium, and strictly speaking it should also comprise the superficial actinic modality of the ultra-violet ray. Pyogenic infections of the skin naturally divide into two groups, superficial and deep. The superficial infections of the skin are represented by various types of pyodermias, such as pyogenic intertrigos, impetiginous streptococcic dermatitides, perleche, and common impetigos.

Of the deep skin infections most common are furuncles, carbuncles, ecthymas, erysipelas, cellulitis, and lymphadenitis.

Ultra-violet ray possesses a distinct local bactericidal effect, but its action is extremely superficial and is stopped by the thinnest sheet of paper tissue or pathologic deposit, such as crust, scab, scales, etc. Hence the ultra-violet ray can be useful only in the most superficial forms of pyodermias. Even then, to insure bactericidal effect it is absolutely necessary to clean the lesions of all pathologic deposits.

X-ray has no direct bactericidal effect, yet through some unexplained alterative effect on tissues has an inhibitive effect on bacteria, and fungi. The powerful absorptive action of x-ray on pathologic infiltrates and granulomata strongly enhances this inhibitive effect.

X-ray is essentially indicated in deep types of infection. It has been successfully used for a long time in deep mycotic and bacterial granulomata. Lately its successful use has been reported by several observers in acute and subacute pyogenic deep infections.

The prompt diminution of the pain and prompt resolution with or without suppuration and abscess formation has been confirmed also in my



personal experience in cases of furuncles, carbuncles, suppurative adenitis, and erysipeloid infiltrations.

X-ray radiation can be expected to effect a resolution only in the very early stages before the central necrosis or abscess formation takes place. The dosage is one-fourth, one-third and up to half of the skin unit with filtration, varying from half a millimeter to one or two millimeters of aluminum in deep hypodermic infections.

X-ray radiations should be given rather tentatively once or twice, two or three days apart, and if favorable reaction does not ensue in twenty-four or forty-eight hours, radiation should not be persisted in.

It is also important that x-ray should not be used as the sole therapeutic measures. All local, except highly irritating antiseptics or caustics and systemic measures indicated in individual cases should be applied.

In conclusion it can be stated that the use of x-ray in acute pyogenic infections has not as yet passed through the experimental stage and should be used with great conservatism. In selected cases highly satisfactory and at times spectacular results are obtained.

\* \* \*

HARRY E. ALDERSON, M. D. (490 Post Street, San Francisco).—There is little to add to the discussion of Lawson and Scholtz, whose remarks correctly present the latest ideas on the subject. It is true that roentgen therapy of various pyogenic infections of the skin is effective if used very early in the proper dosage and with sufficient filtration. However, in the case of erysipelas our experiences have been disappointing. Perhaps it is because so many cases do not present themselves until they are too far advanced. Certainly one should be very careful in selecting one's cases for radiotherapy. Recently I saw a severe complicated example of carbunculosis which a surgeon had had a roentgenologist treat. The disappointing results and, consequently, prolonged illness of the patient may be attributed to the poor judgment of both physicians who failed to examine their patient who had diabetes and other serious underlying troubles. Attention to these latter conditions and one or two injections of typed bacteriophage locally and into the lesion would have given prompt and definite relief. Probably very early roentgen therapy along with constitutional care would have been beneficial too. It is perfectly true, as Lawson states, that injudicious selection of cases will bring the method into disrepute. It cannot be emphasized too strongly that the x-ray treatment should be applied *very early*.

Scholtz correctly includes ultra-violet therapy under this heading, although its use is limited to the most superficial pyogenic processes. However, there are so many other therapeutic procedures that are more promptly effective that I rarely resort to its exclusive use in these conditions.

*Thirty-Three and One-Third Per Cent Reduction of Medical Fees.*—Never before have we seen such world-wide economic depression, and so far we have not been able to find any "old timer" who can remember a similar or worse period in world affairs. Let it be understood that this editorial is in no sense political. The fact that ye editor is a democrat has nothing to do in any way with the free and frank discussion of the matters presented. It may be difficult for some overzealous partisans to eliminate the political aspect, but we must consider the depression as applying to the whole world. Space does not permit a review of the conditions in Australia, South America, Germany, England, and elsewhere, but all honest men admit the seriousness of these world conditions. Who is to blame for all this unhappiness, misery, and starvation is not the question we are considering.

What we wish to consider is the proper, just, and honorable position of the medical profession in relation to the cost of medical services. Every well-informed person will readily admit that most of the great corporations have sustained losses of at least 33 to 50 per cent in their business values. That wealthy people have had, as well as these corporations, reductions in their capital assets and in their incomes of one-third to one-half is common knowledge. This also applies to farmers, stockmen, sheepmen, cotton growers, and to all classes of merchants. The profit is all gone, and losses are universal.

Politicians and labor leaders, to hold their jobs, advocate no cut in wages in order to maintain the present high standard of American living. Deep in our hearts we all know this is an erroneous statement. The union bricklayer who received \$14 per day, a year or five years ago, can live under the present prices for all necessities of life just as well on \$8 or \$10 per day when he can purchase flour at \$1.25 per fifty pounds, whereas a short time ago he paid \$3 for the same. The same applies to all classes of commodities such as groceries and clothing, and to most other expenses. It is true that some things have not come down in price, but they will have to do so before any permanent prosperity can be universal. Under the above world conditions it seems no more than just that the fees for medical services be cut by 33⅓ per cent.

Your editor realizes that such a proposition is not and will not be a popular thing to advocate. The wrath of some members of our profession will fall upon his head, but the justice of such a move cannot be denied if we honestly consider economic conditions existing today. That a flat cut of one-third is much better than secret cuts which are at present going on all through the medical profession, is self-evident. The idea of a voluntary reduction of all fees by the medical profession may not be pleasing to consider, but we believe such a move is the only way to meet the conditions of today. It seems more fair for all to reduce our prices than to cut them secretly behind each others' backs.—*Colorado Med.*, October, 1931.

*Grading of Hospitals Considered Necessary.*—Should hospitals be graded in such a way that the Department of Health could take the position that, regardless of the qualifications of the operating surgeon, certain hospitals should be limited in their scope of operations? The Council of the College of Physicians and Surgeons is of the opinion that a most thorough system of hospital inspection should be inaugurated by a medical practitioner and not by a nurse, and that no definite action should be taken until such inspection has been completed, compiled and properly considered. In order to induce a greater number of pregnant women to make use of hospital facilities for maternity patients many Alberta hospitals are making a flat rate for a twelve days' stay in hospital, including case room, drugs and dressings, and are finding this very satisfactory and in the interest of the patients.—*Canad. M. A. J.*, September, 1931.



## California and Western Medicine

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**Leaflet Regarding Rules of Publication.**—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

## EDITORIALS\*

### DEPARTMENT OF PUBLIC RELATIONS OF THE CALIFORNIA MEDICAL ASSOCIATION

*A Department of Public Relations.*—At this year's annual session of the California Medical Association at San Francisco, the House of Delegates, at its meeting of April 30, 1931, instructed the Council to take steps to create a "Department of Public Relations." The chairman of the Council appointed a special committee, consisting of Doctors Lyell C. Kinney of San Diego, Joseph M. King of Los Angeles, and Karl L. Schauff of San Francisco, to make a report thereon to the Council.<sup>†</sup> The report of that committee was submitted at the Council meeting, held at Pasadena on September 26.

The minutes of the September Council meeting cannot be printed until approved by the Council at its next meeting, which will be in January. In the meantime, it is in order to state that the special committee's report as adopted provided that "An Advisory Committee of Public Relations be established, composed of the chairmen of the component committees or commissions (Standing Committees on: Public Policy and Leg-

\* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column which follows.

<sup>†</sup> See Item 17 of the Council Minutes of May 23, 1931, published in this issue of California and Western Medicine, page 389.

islation; Medical Economics; Hospitals and Clinics; Health and Instruction; and the Cancer Commission), with the president, secretary, and general counsel of the California Medical Association ex-officio." It was further voted that an effort be made to secure the services of a competent colleague, either from California or some other state, who would be the executive secretary of the department, and who would also act as director of the Department of Public Relations.

It was further voted "that the work and responsibilities of the present standing committees or commission shall be in no way curtailed, but that their grouping into the department shall be considered to be for the purpose of increasing their activity and efficiency."

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*An Organization Meeting Will Be Held in the Near Future.*—It was also voted that the members of the Committee on Public Relations should be called together at an early day for the purpose of organization and of development of the work of this department.

As soon as this is done, further information will be given members of the California Medical Association through a Public Relations Department column in the official journal, which column will probably find a place in the California Medical Association department of CALIFORNIA AND WESTERN MEDICINE. Members of the Association who have suggestions to offer in these matters should write to the central office of the California Medical Association, in care of the Association Secretary. A Department of Public Relations can only become a real success when it has the generous and whole-hearted coöperation of members of the California Medical Association from all portions of California. All members are invited to participate in the activities of this new department, and suggestions will be cordially welcomed.

### ANNUAL SESSION AND PRIZE ESSAY PAPERS—1932 SESSION AT PASADENA

*Annual Session of California Medical Association in 1932 Will Be Held at Pasadena, May 2-5.*—At the meeting of the Council of the California Medical Association, held in Pasadena on September 26, last, it was voted to hold next year's annual session at the Hotel Huntington, Pasadena, on Monday to Thursday, May 2-5, inclusive. This will be the first annual session to be held in Pasadena. The California Medical Association headquarters will be the Hotel Huntington, which has long been known as one of the great hotels of California and to which tourists from the East return year after year.

When the Council considered the date of next year's meeting—in particular relation to the American Medical Association meeting at New Orleans, which will be held on May 9-13, 1932—it was first voted to have the California Medical Association hold its meeting in the second week



of April. The hotel management requested a reconsideration, because at that time the hotel would still have many Eastern guests and accommodations for only about one hundred physicians would be available, whereas in the first week of May almost six hundred rooms would be free.

It is extremely important to the California Medical Association to have the largest possible number of members under the same roof during annual sessions, in order to better promote the good fellowship and personal contacts between members from different portions of the large state of California. The Council therefore very wisely decided on the later dates of May 2-5, even though these came in closer proximity to the American Medical Association meeting at New Orleans than was desirable.

Special mention is here made of these arrangements, in the hope that California Medical Association members who are looking forward to attending next year's annual session will send their reservations at an early date to the Hotel Huntington, Pasadena, California (Mr. S. W. Royce, manager).

\* \* \*

*Excellent Outlook for a Successful Meeting.*—At the recent meeting of the Council, the chairman of the local committee of arrangements, Dr. Fitch C. E. Mattison, submitted a tentative program of afternoon and evening entertainments that received very favorable comment. Wherefore, it may be taken for granted that our Pasadena and Los Angeles colleagues will exert every effort to make the 1932 session altogether successful, so that in the future in the consideration of meeting places for the yearly reunions, the Hotel Huntington will be thought of with as pleasant recollections as are held of annual reunions which in days gone by have convened at the Hotel del Coronado, Hotel Del Monte, and Hotel Fairmont. These four great hotels, located in different parts of California, with their facilities to comfortably care for a large number of California Medical Association members, are very worth-while factors in making annual sessions enjoyable and profitable. If you wish to be sure of a reservation at the 1932 Hotel Huntington session, it will be wise to send in your reservation in the near future.

\* \* \*

*Places on the Scientific Program of the 1932 Annual Session Should Be Requested Now.*—In the above paragraphs, the facilities of the Hotel Huntington for good fellowship and social features were mentioned. It must be remembered that an additional advantage which these large California hotels possess for California Medical Association annual reunions is their considerable number of auditorium and meeting place rooms for the different scientific sections of the Association, which make it possible for attending members to hear the particular papers of different sections in which they are most interested.

Following the plan which has been in vogue during the last several years, it is hoped in Pasadena

to have the members of the scientific sections get a prompt start each morning—section officers please take notice—with presentations of papers up to 1 o'clock or so, at which time luncheon will be served, to be followed by miscellaneous entertainment in the afternoons and evenings. The exception to this arrangement will be on the afternoon of the first day, Monday, when meetings of most of the scientific sections will be held.

On advertising page 4 of every issue of CALIFORNIA AND WESTERN MEDICINE the names and addresses of the section officers are printed. Every member of the California Medical Association who has in mind the submittal of a paper at one of the scientific sections should send in such request at once, if request has not been already made. It must be remembered that the officers who have charge of the section programs desire to learn as early as possible concerning the nature of papers which will be submitted, because in that way more rounded and nonconflicting programs can be presented. An additional advantage from early decisions in these matters is that papers which are drafted into rough form some months before the session are more apt to be productions of worth than those which are hastily put together at the last minute. And last but not least, carefully-thought-over topics and discussions not only make a better impression on the listeners at an annual session, but in the pages of the official journal carry more conviction, are of greater value, and are more appreciated by the hundreds of members who find it impossible to be present in person at the annual session.

Wherefore, again, it would make for a better 1932 California Medical Association annual session, if members who contemplate the presentation of papers would write to the proper section secretary, sending a copy of the request letter to the central office for the Association Secretary, Doctor Pope, who, as ex-officio chairman of the Committee on Scientific Program, also will be glad to have such information.

Essayists should keep in mind that the rules of the Association in regard to annual session papers, insofar as subsequent publication in the official journal is concerned, do not make it obligatory for CALIFORNIA AND WESTERN MEDICINE to print the same. The Association prints a leaflet—"Suggestions to Authors"—in which rules regarding the acceptance of manuscripts are outlined in some detail. California Medical Association members who have presentations of papers in mind and who do not possess a copy of this leaflet should address the Association Secretary with request therefor. Observance of the rules discussed therein will make for better papers and also for real conservation of time and effort for authors, editors, listeners, and readers.

\* \* \*

*Rules for California Medical Association Clinical and Research Prize Entrants.*—In every number of CALIFORNIA AND WESTERN MEDICINE, on advertising page 2, is printed a note concerning the prizes which are annually offered by the Cali-

for the two best papers on clinical and research subjects. In order not to overburden the special committee on prizes, only such papers are considered, the authors of which have signified their desire to have their manuscripts so judged. During the last several years it has been distressing to the officers of the California Medical Association that so few entrants have registered for these prizes.

In the hope of securing a larger number of entrants, the rules were again revised by the Council at its September 26 meeting, and these rules are printed in the official notices of the California Medical Association column of this issue. (See page 386.)

It will be noted therefrom that any paper read before one of the scientific sections of the Association may be submitted for prize consideration. This is made possible through the observance of certain simple rules, whereby secrecy is preserved throughout as regards authors of such papers. As an item of historical interest, the names of California Medical Association members who were the winners or who secured honorable mention for the California Medical Association prizes—since these prizes were inaugurated some years ago—are printed in this number of CALIFORNIA AND WESTERN MEDICINE. (See Miscellany Department, under caption, Medical History of California, page 404.)

Members of the Association are again reminded that the Committee on Prizes holds inviolate the names of all entrants, giving publicity only to those entrants who receive either a prize or honorable mention. Under such conditions no essayist who has done considerable work in the preparation of an annual session paper need feel hesitancy in submitting it for the consideration of the Committee on Prizes. Members of the California Medical Association are again urged to do their part in maintaining these annual prizes. Each successful entrant receives a cash present of one hundred and fifty dollars and, in addition, a neatly framed scroll as a memento of his work. Of course, each entrant also receives that which is equally important, namely the great personal benefit incident to the preparation of such a paper. It would be most gratifying to the Association if the Committee on Prizes could report at the 1932 annual session that a goodly number of members had submitted papers for prize consideration.

#### THE PACIFIC INSTITUTE OF TROPICAL MEDICINE

*The Article by Reed on "Organized Tropical Medicine in the United States."*—In the September CALIFORNIA AND WESTERN MEDICINE, page 185, was printed an article by Alfred C. Reed, M. D., of San Francisco, which had the caption: "Organized Tropical Medicine in the Western United States."\*

\* See, also, article by A. E. Larsen in October CALIFORNIA AND WESTERN MEDICINE, page 308, and letter from J. V. Barrow in this number of CALIFORNIA AND WESTERN MEDICINE, page 403.

Reference is here made thereto, because the facts and plans which are brought out in Reed's discussion and comments are such as to invite the best thought of members of the California Medical Association, and be worthy also of the real interest and coöperation of both the medical profession and the lay public.

\* \* \*

*The Pacific Institute for Tropical Medicine.*—For those who are not familiar with the status of tropical medicine research in America, it may be stated that the Hooper Foundation of Medical Research of the University of California has as one of its departments, "The Pacific Institute of Tropical Medicine," its chief being Dr. Alfred C. Reed, Professor of Tropical Medicine in the University of California Medical School, who is also the author of the above referred to paper. This institute began its active work in February, 1929. Its brief career has not only given justification for its existence but has proven and emphasized the desirability and need of a real school of tropical medicine for the Pacific Coast, with preferable location at San Francisco.

\* \* \*

*San Francisco Is a Logical Place for a School of Tropical Medicine.*—Reed in his article very aptly states that the United States needs three well-developed centers or institutions of tropical medicine, to be located: one at New York, one at New Orleans, and one at San Francisco. The present day economic stress and strain, with its kaleidoscopic changes in world market relationships, instead of holding back, may really speed the formation of such institutions. Because if America is to establish a premier commercial influence in other continents than its own, and in such manner as to redound in large measure to the economic advantages of the people of the United States, it will be necessary to have somewhat of a trained American personnel whose members will be able to efficiently act as representatives of American business houses in the different countries of other continents.

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*What Leading European Nations Have Done.*—That such a contention is not visionary is amply and forcibly demonstrated by what European countries whose nationals have been engaged in active competition for the trade of foreign markets in the tropics have found themselves obliged to do. By way of example, could anything be more convincing concerning the importance of schools of tropical medicine as important factors in trade than the following facts:

England has four important schools of tropical medicine, with its major institution in London;

Germany has a very notable institute of tropical medicine at Hamburg;

Holland has an excellent institution of tropical medicine at Amsterdam; and

Belgium has its institute of tropical medicine at Brussels.



The above trading nations of Europe, years ago, through experience, learned that in order to carry on successful trading with peoples of the tropics, it is necessary to have accurate knowledge of the diseases indigenous to such places. In that way trade representatives and travelers—through adequate preliminary education and equipment—are more fully protected against sickness and death, so that business contracts can be carried through to satisfactory fulfillment.

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*America in the Future Must Secure More Foreign Trade Markets.*—In the struggle for the trade of the world markets—and the peoples of tropical lands offer an inviting field for such endeavors—the nations which send trade representatives who have passed under the supervision of their respective institutes of tropical medicine will have a big advantage. It must be apparent that our own country has still much to learn on best methods of obtaining the trade and good will of foreign peoples. In the past, with the immense territory open in continental America, that need has not been greatly felt, but when the great commercial readjustments which are taking place before our eyes are somewhat settled, then the need of such foreign markets will be appreciated by American business men.

\* \* \*

*Present Day Economic Stress Only Emphasizes the Need for an Institute for Tropical Medicine.*—And because such will be the case, it may be taken for granted that one of the institutions in America which should and probably will receive both state and private aid will be the "Pacific Institute of Tropical Medicine" of the Hooper Foundation for Medical Research of the University of California.

In passing, it may be stated that plans for buildings and maintenance of this institute were carefully laid in 1929 and a prospectus was issued thereon. Methods for securing an endowment were also carefully worked out prior to that time and, in fact, were about to be inaugurated when the economic collapse in the fall of 1929 necessitated a suspension of all such efforts.

\* \* \*

*An Excellent Field for Philanthropic Endeavor.*—Mention is made of this in the hope that the attention of citizens who are looking for ways of doing a big service for humanity, for the advancement of science and for the material prosperity and greater development of California and the United States, may be called thereto.

The Pacific Institute for Tropical Medicine is not only giving courses of instruction but has been carrying on most interesting and valuable investigations and researches. It is an institution which is worthy of the active interest and sympathetic coöperation of all citizens of California. Members of the California Medical Association who aid in spreading its reputation for good work will be honoring themselves, their profession, and their State.

## STATE MEDICAL LIBRARY

*State Medical Library Act Meets With Complications.*—The last mention of the State Medical Library of California in *CALIFORNIA AND WESTERN MEDICINE* was printed in the July, 1931, number, page 48. In that and previous editorials it was stated that the State Medical Library Act (A. B. 477—Neilson), which was signed on June 9, 1931, by Governor James J. Rolph, Jr.—with other legislative measures that had passed both houses—would become a law some sixty days after the date of adjournment of the legislature.

The distress of those members of the California Medical Association who had particularly sponsored and strenuously worked for A. B. 477 for a state medical library can be imagined when in the fore part of October news was given out that a seemingly technical flaw in the legal phraseology of the title of the act might endanger that section thereof which had to do with the appropriation of moneys for its maintenance, thus making impossible the institution of library work until this defect could be remedied by a succeeding legislature. That appropriation, it will be remembered, was made possible through an allocation and transfer of moneys from the reserve funds of the Board of Medical Examiners of the State of California to the regents of the University of California. The act provides that the California State Medical Library with its major branches at San Francisco and Los Angeles is to be conducted under the supervision of the state university regents as one of the activities of the University of California.

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*The Unexpected Difficulties Were Overcome.*—It is a pleasure therefore to chronicle in this column that these new and unforeseen difficulties have been surmounted, and that *a state medical library will be instituted in California*. This brief comment is here printed so that the members of the California Medical Association who have been watching with interest this new experiment in state library work may know that all is well and that in due time the state medical library will begin its work. In later issues of this journal, as the detailed plans are developed, further comment will be made, so that members of the Association may know how to avail themselves of the privileges of this new institution.

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*The Sad Experience of Baltimore.*—Disastrous fires, both in California and elsewhere, preach telling sermons in favor of Assembly Bill No. 734. The famous Baltimore fire of 1904 necessitated calling for help from the departments of New York, Philadelphia, and Washington. When the men arrived with their trucks and equipment, it was found to be impossible to function, because the fire hose of the other cities had a different thread from that used in Baltimore. Therefore the expert aid needed in the time of great emergency was lacking. Millions of dollars of property was lost, lives were in jeopardy, and confusion was accentuated as an outcome of what would seem to many to be the lack of that uncommon common sense which plans for the days ahead.—*California State Department of Industrial Relations*, May 1931.

## MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

**The Injection Treatment of Anal Fissure.**—Fissure in ano comprises eight per cent of rectal cases and is dreaded by most practitioners. The patient is commonly in such severe pain that he demands instant relief. Local applications of medicine, except in the mildest cases, bring tardy, if any, improvement. Operative interference by excision of the fissured area, or divulsion or cutting of the sphincters, is regarded by the patient with an apprehension occasionally deserved. Yet, as a matter of fact, there are few troubles so promptly relieved and so happily cured as is anal fissure by the injection method.

When a complaint of severe rectal pain is presented in the absence of fever, and the patient is carefully examined with the buttocks drawn well apart, a fissure or ulcer may be found either in the exact posterior or, occasionally in women, in the exact anterior quadrant close to the anal canal. The sphincter ani and levatores ani muscles run in anteroposterior direction supporting the anal canal. Strain across the direction of their fibers is well supported, but the unsupported skin between their fibers in the posterior or six o'clock quadrant is readily torn when pressure is there concentrated, as by straining to pass a large, hard stool.

The patient being in the left Simms position, procain hydrochlorid solution one per cent is injected very slowly by a hypodermic needle three-fourths inch, gauge 25, underneath the fissured area. This is to render the area insensitive while the injection of the more permanently anesthetic and curative solution of quinin urea hydrochlorid follows. Two per cent solution is recommended, injected slowly, deep beneath the fissure. Some have used five per cent, but if such a strong solution be used the quantity should be limited to one cubic centimeter lest a slough occur. I prefer, for safety, weaker solutions in rather larger quantity and find them equally effective. If there be a tiny sentinel pile of skin just peripheral to the external end of the fissure it is snipped off to assure good drainage from the fissure. As soon as injection is made the patient is completely relieved of his severe pain. He leaves the office happy and grateful.

The sphincter ani muscle now lets go of its spasm and allows the ulcer to begin healing. Primary disease up in the anal canal may be treated meanwhile. In ten days there is a mild return of pain in the fissure, and one more injection of procain is given, followed by quinin urea, this time in only one per cent. In three weeks, healing should be complete and at no time should the patient be uncomfortable.

Contraindications to the injection treatment are anal ulcers due to such causes as tuberculosis, chancroidal infection, carcinoma, and chancre. Tuberculous ulcers are usually multiple. Chancroidal ulcers spread rapidly. Carcinoma has a hard, often rolled border. Chancre is more difficult to distinguish, but inguinal lymph adenopathy may raise the suspicion of need for darkfield examination.

NORMAN J. KILBOURNE, Los Angeles.

**Pneumonia on the Pacific Coast.**—Because most pneumonia studies on large series of cases have been conducted in the eastern and middle western states clinics, it was thought that a survey of this disease as met with on the Pacific Coast would be of interest. These findings, which are briefed from a larger paper, are here given in short summary:

The winter of 1928-1929 was marked by the prevalence and the virulence of the pneumonias in California. At Highland Hospital in Oakland, where this study was made, 485 patients were treated. Of these, 393 were diagnosed bronchopneumonia, and 87 lobar pneumonia. The mortality among the former was 32 per cent, while among the latter it was 34 per cent. The greatest number of deaths occurred between the ages of thirty to forty-five years. The ratio of males to females was two to one. In children 85 per cent of the patients suffered from bronchopneumonia with a mortality of 20 per cent. In lobar pneumonia patients the temperature fell by crisis in 30 per cent. The seat of lesion occurred in the right lung in 70 per cent, in the left lung 22 per cent, while in 8 per cent it was bilateral. Complicating features in all pneumonias, however, were not usual. Delayed resolution occurred in 3 per cent, empyema in 2 per cent, meningitis in 0.5 per cent, pericarditis in 0.5 per cent.

During the winter of 1929-1930 only 268 cases of pneumonia were encountered. Of these, 210 suffered from bronchopneumonia, and 58 from lobar pneumonia. The mortality in the former was 21 per cent, while in the lobar type it was but 10 per cent. Empyema occurred in but 2 per cent of the patients suffering from bronchopneumonia, none of them being fatal.

The most obvious reason for these differences, both in prevalence and mortality, in these two years was the apparent low virulence of the organism, for the treatment remained essentially the same.

The subject of serum treatment being a pertinent one, investigation was undertaken with this



end in view. Typing was done by the rapid Sabin method and 91 per cent of patients were infected by pneumococcus group IV organisms, in which were included the streptococcus forms. An extensive correspondence was instituted involving form letters to the large medical centers and hospitals in this country and Canada. The replies from all eastern clinics indicated that types I and II serum treatment had been used with good results. The results from the Middle Western and Rocky Mountain states were not so enthusiastic, while on the Pacific Coast, serum treatment was discouraging, to say the least. At Los Angeles County Hospital the concentrated serum had been used during the winter 1928-1929, but with poor results. During the winter of 1929-1930, the antibody solution of types I, II, and III combined was used. The use of both these therapies proved of no particular value and their use was discontinued. These same results were met with in other centers along the Coast.

The conclusions drawn from this study are:

1. Bronchopneumonia is the most common type met with on the Pacific Coast, occurring five times as often as lobar pneumonia.
2. Complications in this form are uncommon and have a low mortality rate.
3. Group IV pneumococcus is the most constant organism found.
4. Little hope can be held for successful results by the use of the type I and II sera used in the eastern United States and Canada.

PAUL MICHAEL, Oakland.

**Thallium Acetate Depilation for Ringworm Dangerous.**—This new "easy way out" of the treatment of ringworm of the scalp has centered attention on the articles appearing in both foreign and domestic literature and, as is often the case, it is difficult for the bedside physician to properly evaluate the treatment.

Like most "easy ways out," we use such methods only to regret later. This promises to be true in the case of thallium acetate. We have forsaken the reliable roentgen ray and local treatment with no mortality and insignificant morbidity for a therapy with a considerable morbidity and a not to be disregarded mortality. "Old ways are the best," is the true statement of fact in the treatment of ringworm of the scalp. Do not accept thallium without sober and sincere reflection that, although all may go well, death and disability may be your associates in the treatment.

Thallium acetate must be accurately weighed as must the patient; the dosage must then be carefully calculated, the age and the ratio of age to weight must be considered as well, and if you make a mistake of a decimal place or an error in judgment in evaluation of your patient, take care!

Regarding the toxicology of thallium, it shows a marked similarity to lead in chemical and toxic properties. It has a selective action on all forms of nervous tissue and in the rat causes degeneration in the brain cells even in tiny doses. It can

be assumed that the same occurs to the human central nervous system. The excruciating peripheral neuritis developed by sensitive patients further bears this out. Permanent brain injury can conceivably occur. The margin of safety between the epilating dose on the one hand, and the toxic dose on the other is so small as to constitute an active danger especially, as individual susceptibility cannot be determined by weight and age alone. Thallium does not deteriorate in solution, and therefore the symptoms cannot be blamed on the solution used.

The rumor that the medical profession is soon to be detailed by certain drug houses with preparations of thallium, and the incorporation of thallium in epilating creams for cosmetic application gives urge to a plea to the bedside physician to avoid thallium until its dangers can be evaluated and eliminated.

It is probable that in the event of a reaction to thallium the intravenous use of calcium would protect the patient through a fixation of the metal as it does in lead poisoning. This, however, is simply a conclusion of the author without his having so used it.

MERLIN T-R. MAYNARD, San Jose.

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*Syphilitic Infection Without Symptoms.*—While it is true that the results obtained in experimental syphilis in rabbits are not necessarily applicable to man, the studies recently published by Albrecht from Kolle's Institute in Frankfurt, on the transmissibility of syphilis in rabbits are so interesting that we reproduce the author's summary from the article in the *Deutsche Medizinische Wochenschrift*:

"1. The fact, established by Kolle and Ritz, that the vaginal mucous membrane of rabbits is well adapted to the production of syphilitic processes is confirmed. By careful swabbing of the vagina with chancre emulsion, whereby injury to the mucous membrane is excluded, primary lesions in the vaginal mucous membrane could be produced in some of the animals. In other animals no vaginal lesions could be discovered, even despite most careful examination.

"2. Some rabbits which showed no demonstrable lesions following vaginal introduction of the virus were yet found to be infected (as evidenced by gland transplantation) despite the fact that they remained entirely free of symptoms, and showed no primary lesions, swelling of the glands or other signs.

"3. Female rabbits infected intravenously and having generalized syphilis can, after the signs have disappeared, *i. e.*, during the latent stage when no signs or symptoms of any kind are discoverable, infect normal male rabbits through coitus.

"4. A syphilitic male rabbit made free of signs and symptoms by chemotherapeutic treatment, but not sterilized, is able through coitus to produce a syphilitic infection without symptoms in a healthy female rabbit.

"5. A female rabbit, vaginally infected without the symptoms, can infect a male rabbit through coitus, the infection being without symptoms, and this male can in turn through coitus produce a syphilitic infection, again without symptoms in another female rabbit.

"6. Since syphilis is an infectious disease of man, for which the species 'homo sapiens' is more susceptible than is the species 'cuniculus,' we are justified in assuming the spread of infection without symptoms also for man."—*City of New York Department of Health Weekly Bulletin*, August 2, 1930.

# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION\*

JUNIUS B. HARRIS.....President  
JOSEPH M. KING.....President-Elect  
EMMA W. POPE.....Secretary

### OFFICIAL NOTICES

#### Clinical and Research Prize Contest Rules

##### *General Directions to Entrants:*

1. Any member of the California Medical Association is eligible to compete for the prizes. Any question arising as to the eligibility of a candidate or the admissibility of his essay will be settled by the decision of the Council.

2. Manuscripts must be typewritten on one side of the paper; they must be double spaced; and they must not be folded or rolled. Illustrations or charts must be marked with the title of the paper to which they belong.

3. Essays must not contain more than four thousand words. In judging a paper the committee will take into account the basic importance of the work done and its novelty; the thoroughness with which the research has been carried out; the clearness with which it has been written up; and the neatness of the manuscripts and illustrations.

4. Papers should be sent, preferably by registered mail, to Dr. Emma W. Pope, secretary of the California Medical Association, Room 2004, 450 Sutter Street, San Francisco. They should be identified by a nom de plume or motto only. A separate envelope should be sent to Doctor Pope containing the author's name and his nom de plume or motto, so that after the award is made the name of the writer can be found. Any return addresses or distinguishing marks will be removed from the wrappers before the papers are turned over to the judges.

5. All papers must be in the hands of Doctor Pope before February 15, in order that the judges may finish their work in time for the meeting of the Association.

6. The judges reserve the right to withhold the award in the event that no paper comes up to the standards of excellence they feel should be set.

7. If, in the judgment of the editors of CALIFORNIA AND WESTERN MEDICINE, and the editorial councilors, the paper on laboratory research is too technical or otherwise unsuitable for inclusion in CALIFORNIA AND WESTERN MEDICINE, the prize winner will be allowed to publish it in some special journal and will be required to make an abstract for the readers in California.

8. Inquiries relative to the prize contest should be addressed to the chairman of the committee, George Dock, M. D., 94 North Madison Avenue, Pasadena, California.

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*Directions to entrants for the annual Clinical and Research Prizes who desire to present their contest papers before a section at the same annual session:*

1. All papers entered for the Clinical and Research Prizes are eligible to be read at the annual session of the California Medical Association under the following conditions:

\* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellaneous.

2. Each entrant to send one copy of his paper to the state office in the usual way for consideration by the Prize Committee, signed by his nom de plume, and under a title changed so that it could apply to a similar but different paper.

3. Each entrant to send to the proper section the second copy under his own name and proper title.

4. The Prize Committee will consider each article from the standpoint of its relative value to other papers submitted for the prizes, but will be unable because of dissimilarity in the two titles of the papers as given on the program and before the committee to connect the two as being one and the same paper.

5. Section officers will approve or disapprove all papers for places on specific section programs as heretofore. They will have no knowledge that any paper is under consideration by the Prize Committee.

\* \* \*

**Annual Session, 1932.**—May 2-5, 1932, has been set by the Council of the California Medical Association as the date of the sixty-second annual session of the California Medical Association. The date will appear on the top of the front cover each month.

\* \* \*

**Next Council Meeting.**—The date of the January meeting of the Council has been set for January 16. The meeting will be held in the offices of the Association, 2004 Four Fifty Sutter Street, San Francisco.

### COUNCIL MINUTES

#### Minutes of the Two Hundred and Second Meeting of the Council of the California Medical Association

*Approved at the Two Hundred and Second Meeting of the Council of the California Medical Association, September 26, 1931*

Held in the offices of the Association, Room 2004, 450 Sutter Building, San Francisco, Saturday, May 23, 1931, at 10:30 a. m.

**Present.**—Doctors Harris, King, Hamlin, Duffield, Ullmann, DeLappe, Phillips, Schaupp, Peers, Rogers, Hunter, Kelly, Catton, Reinle, Cushman, Kress, Pope, and General Counsel Peart.

**Absent.**—Doctors Pallette, Arnold, and Kiger.

1. **Call to Order.**—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. **Financial Statement.**—Financial statement for the month of April 1931 was presented by the secretary and approved as follows:

#### *April 1931*

|                                         |              |
|-----------------------------------------|--------------|
| Total receipts for April.....           | \$ 6,263.36  |
| Total expenses for April.....           | 7,389.74     |
| Loss for April*.....                    | 1,126.38     |
| Gain for 1931, three months.....        | 29,328.14    |
| Net gain for 1931 .....                 | \$ 28,201.76 |
| Cash on hand:                           |              |
| January 1, 1931.....                    | \$97,934.28  |
| Revolving fund .....                    | 500.00       |
| Petty cash .....                        | 50.00        |
| Salary fund .....                       | 1,300.00     |
| Total cash on hand, April 30, 1931..... | \$ 99,784.28 |
| Total cash on hand, April 30, 1931..... | \$127,986.04 |

3. **Minutes of the Council.**—The chairman stated that the minutes of the 200th and 201st meetings of the Council had been mailed to all members thereof,

\* The apparent increase of expenses over receipts from April to December is occasioned by the fact that the major portion of dues is received during the first three months of the year.



and if there were no objections he would entertain a motion for their approval without further reading.

Doctor Cushman stated that the last sentence of the second paragraph of minutes 18 of the 201st meeting was ambiguous and that he wished to move for the adoption of a change which would make this sentence read: "Doctor Kelly stated that as associate editor it would be Doctor Pope's duty to do the routine office work connected with the JOURNAL, and that Doctor Kress would assume the full responsibilities as editor of the official journal." Doctor Cushman's motion was seconded by Doctor Kelly and carried.

Action by the Council.—On motion of Kelly, seconded by Hunter, and unanimously carried, the following resolution was adopted:

Resolved, That the minutes of the 200th and 201st meetings of the Council, as amended, be adopted.

**4. Arrangements Committee.**—Discussion was had of the appointment of a chairman of the Arrangements Committee for the 1932 annual session and the Los Angeles members stated that Doctor Mattison was at present working on arrangements for the meeting, and they suggested he be appointed chairman.

Action by the Council.—On motion of Duffield, seconded by Kress, the following resolution was adopted:

Resolved, That the appointment of Fitch C. E. Mattison as chairman of the Arrangements Committee be ratified and that Doctor Mattison be authorized to suggest the other members of the committee, who will be appointed by the chairman, subject to the approval of the Council.

Letter from Dr. Charles D. Lockwood regarding a public meeting at the annual session and arrangements for speakers was presented.

Action by the Council.—On motion of Kress, seconded by Kelly, the following resolution was adopted:

Resolved, That the letter from Doctor Lockwood be referred to the local Arrangements Committee with instructions to report back to the Council.

**5. Fall Council Meeting.**—Discussion was had of the date and place of the next meeting of the Council.

Action by the Council.—On motion of Duffield, seconded by Kress, and unanimously carried, the following resolution was adopted:

Resolved, That the next meeting of the Council be held on September 26, 1931, at the Hotel Huntington, Pasadena.

**6. Date of Annual Meeting.**—Discussion was had of the setting of the date of the 1932 annual session and on motion of Kress, seconded by Kelly, the following resolution was adopted:

Resolved, That the date of the next annual session be decided at the meeting of the Council on September 26, 1931.

**7. Delegates to the American Medical Association.** The secretary stated that on account of illness Dr. Dudley Smith, delegate to the American Medical Association, would be unable to attend the session at Philadelphia and that Dr. Joseph Catton, his alternate, was also unable to attend on account of unforeseen circumstances. Letter from Doctor Kress regarding the inability of Percy T. Magan, delegate, and his alternate, Charles D. Lockwood, to attend the Philadelphia session was presented.

Telegram from the secretary of the American Medical Association regarding ruling on certification of delegates was read.

Action by the Council.—On motion of Kress, seconded by Duffield, and carried, the following resolution was adopted:

Resolved, That the California delegation present the following resolution at the first meeting of the House of Delegates of the American Medical Association:

"Resolved, That it is the sense of the House of Delegates of the American Medical Association that those provisions of the Constitution and By-Laws of the American Medical Association dealing with the credentials of constituent state associations shall be

construed by the Credentials Committee, when a constituent state association reports that one of its delegates and his respective alternate are both unable to attend a special annual session of the American Medical Association in which one of them could have functioned as a delegate, that under such conditions (provided the constituted body or council of such a constituent state association is authorized by its state constitution and by-laws to act for the state association and its house of delegates) that when such authorized state body has duly elected others of its members to fill the vacancies caused by the absence of both a delegate and his respective alternate, then such a duly elected substitute delegate or his duly elected substitute alternate who present proper credentials, shall be eligible to regular membership in the House of Delegates of the American Medical Association for such a specified annual session."

The Council then proceeded to elect substitute delegates and alternates to the American Medical Association.

James F. Percy of Los Angeles was nominated as delegate to the American Medical Association for the 1931 session by William Duffield; such nomination was seconded by George G. Hunter. Junius B. Harris moved that the nominations be closed and the secretary be instructed to cast the ballot; such motion was duly seconded and carried. The secretary cast the ballot of all members of the Council and the chairman announced the election of James F. Percy as delegate to the American Medical Association for the 1931 session to serve in the place of Percy T. Magan.

George L. Cole of Los Angeles was nominated as alternate to James F. Percy for the 1931 session of the American Medical Association by William Duffield; such nomination was seconded by Junius B. Harris. Joseph M. King moved that the nominations be closed and the secretary be instructed to cast the ballot; such motion was duly seconded and carried. The secretary cast the ballot of all members of the Council and the chairman announced the election of George L. Cole as alternate to James F. Percy to the American Medical Association session of 1931; Doctor Cole serving as alternate in place of Charles D. Lockwood.

Merton J. Price of San Francisco was nominated as delegate to the American Medical Association for the 1931 session by Joseph Catton; such nomination was seconded by Junius B. Harris. Alfred L. Phillips moved that the nominations be closed and the secretary be instructed to cast the ballot; such motion was duly seconded and carried. The secretary cast the ballot of all members of the Council and the chairman announced the election of Merton J. Price as delegate to the American Medical Association for the 1931 session to serve in place of Dudley Smith.

John M. Graves of San Francisco was nominated as alternate to Merton J. Price for the 1931 session of the American Medical Association by Joseph Catton; such nomination was seconded by Fred R. DeLappe; George G. Hunter moved that the nominations be closed and the secretary be instructed to cast the ballot; such motion was duly seconded and carried. The secretary cast the ballot of all members of the Council and the chairman announced the election of John M. Graves as alternate to Merton J. Price to the American Medical Association session of 1931; Doctor Graves serving as alternate in the place of Doctor Catton.

Letter from Albert Soiland, delegate, stating that he did not intend to return immediately to California after the American Medical Association meeting and asking if it would be possible to receive his expense money before leaving for the meeting was presented.

Full discussion was then had of payment of transportation expenses of officers of the Association.

Action by the Council.—On motion duly made, seconded and carried, the following resolution was adopted:

Resolved, That expenses of transportation be allowed and paid by the California Medical Association in the following cases:



1. To councilors in attending meeting of the Council of the California Medical Association and of the Trustees of the California Medical Association (not including annual session meetings).

2. To delegates or alternates to the American Medical Association who attend meetings as members of the House of Delegates thereof.

3. To members of the Committee on Scientific Work in attending meetings thereof.

4. To officers of the Association and members of Committees thereof when authorized or ratified by the Council or the Executive Committee.

Expenses of transportation shall not exceed the amount required for standard railroad fare (including lower berth when night travel is involved) for the distance traveled from place of residence; and shall be allowed only for the amount actually disbursed for transportation and Pullman service to be evidenced by written statement signed by the person to whom such expenses are paid.

The question of instructing delegates regarding the resolution adopted on change of name of the Committee on the Costs of Medical Care was called to the attention of the Council.

Action by the Council.—On motion of Kelly, seconded by King, and unanimously carried, the following resolution was adopted:

Resolved, That in accordance with previous Council action, the California Medical Association delegates be instructed to present the resolution.

8. **Legislation.**—Junius B. Harris, Chairman of the Committee on Public Policy and Legislation, reported on the status of medical legislation at the adjournment of the legislative session.

9. **Cancer Commission.**—Charles Dukes, Chairman of the Cancer Commission, reported that the organization of the commission was completed and that Doctor Kilgore, secretary, would outline the plan of activity. Doctor Kilgore, secretary of the commission, appointed under authority of the House of Delegates, then outlined the requirements of the commission and submitted a budget covering office rental, furnishing, equipment, and salaries totaling \$4300.50 for the first year. Doctor Kilgore stated that this budget allowed for one-third of the office rent on the assumption that if the Council established a Public Relations Department as authorized by the House of Delegates these two departments could occupy one office and a fair estimate of the expenses would be one-third for the Cancer Commission and two-thirds for the Public Relations Department.

Action by the Council.—On motion of Ullmann, seconded by Schaupp, the following resolution was presented:

Resolved, That the budget as submitted be accepted with the condition that the commission be authorized to expend, in case of necessity, not over \$4500 instead of \$4300.50 for the first year.

Doctor Catton then discussed the motion, stating that while he was in sympathy with the idea he hoped the Association would give due consideration to the problem and act without haste, explaining that the cancer problem was only one branch of medicine and that approximately one-tenth of the annual income of the Association was being allocated to this work.

Action by the Council.—Doctor Catton then offered the following substitute motion, which was seconded by Duffield:

Resolved, That this Council commends the report of this commission and is in full accord with the thought expressed and the procedure outlined by the commission, but it feels it should not go ahead and allocate this money without first giving complete consideration to the whole problem, and it now refers to the Executive Committee, with power to act, this complete report of the commission.

After further discussion the chairman called for a vote on Doctor Catton's substitute motion. 5 ayes; 7 noes. Substitute motion defeated.

A vote was then taken on the original motion of Doctor Ullmann, and the majority being in favor

the motion was adopted by the Council; Doctors Duffield, Catton, and Cushman voting "No."

Terms of members of the commission were then fixed as follows: Doctors Ophüls, Meland, and Zeiler, one-year terms; Doctors Brunn, Ullmann, and Toland, two-year terms; Doctors Dukes, Kilgore, and Kinney, three-year terms.

10. **Board of Medical Examiners.**—Letters from the Los Angeles County Medical Society and William Duffield regarding the expiration of the terms of certain members of the Board of Medical Examiners was presented.

Action by the Council.—On motion of Harris, seconded by Duffield, the following resolution was adopted:

Resolved, That these letters be passed at this time.

11. **Membership.**—Letter from the secretary of the Orange County Medical Society regarding the provision of the Constitution on six months' residency before admission to a county society in cases of former members of the California Medical Association who had been abroad was presented. It was the sense of the Council that the provision of the Constitution and By-Laws be adhered to.

Letter from the secretary of the San Bernardino County Society regarding remittance of dues of deceased member was presented.

Action by the Council.—On motion of Kress, seconded by Harris, the following resolution was adopted:

Resolved, That the Association accept the dues and that same be then remitted.

Membership data and letter from the San Francisco County Society requesting that retired membership be granted Agnes Walker was presented.

Action by the Council.—On motion of Hunter, seconded by Harris, the following resolution was adopted:

Resolved, That Agnes Walker, member of the San Francisco County Medical Society, be granted retired membership in the California Medical Association.

Membership data and letter from the Sonoma County Medical Society requesting that Elizabeth Yates be granted retired membership, was presented.

Action by the Council.—On motion of Harris, seconded by Duffield, the following resolution was adopted:

Resolved, That Elizabeth Yates, member of the Sonoma County Medical Society, be granted retired membership in the California Medical Association.

12. **Advertising.**—Letter from a member of the Association objecting to an advertisement of a sanitarium carried in the JOURNAL was presented. It was pointed out that although previous advertisements had not carried the name of the medical director, such name now appeared in the advertisement. It was the sense of the Council that there was no objection to the advertisement.

Letter from Doctor Rogers regarding an advertisement carried in the American Medical Association journal was presented. The secretary stated that this article was included in exempted articles in New and Nonofficial Remedies.

13. **Collection of Fees.**—Letter from a member of the San Francisco County Medical Society regarding suit for collection of fees was discussed. The general counsel was instructed to formulate a letter to cover the point in question.

14. **Ownership of Journal.**—Letter from Doctor Kress requesting information on yearly publication of statement of ownership in the JOURNAL was read. The general counsel stated that scientific publications were exempted from publication of such notice.

15. **County Hospitals.**—Letter from a member of the Kern County Society regarding the use of county hospitals by pay patients was discussed by the Council.

It was suggested that the General Counsel reply to the Kern County member.

Action by the Council.—On motion of Kress, seconded by Kelly, the following resolution was adopted:



Resolved, That certain members of the Kern County Society be invited to attend the next meeting of the Executive Committee to discuss this problem.

\* 16. (See footnote.)

17. **Public Relations Committee.**—Discussion was had of the establishment of a Department of Public Relations as authorized by the House of Delegates.

Action by the Council.—On motion of Kelly, seconded by Catton, the following resolution was adopted:

Resolved, That the chairman of the Council appoint a committee of not less than three nor more than five to study the matter and report to the Council at the fall meeting.

Letter from Rollin B. French was presented and was referred to the committee to be appointed by the chairman to study and report on the Public Relations Department.

The secretary was instructed to write a special letter to Doctor French notifying him of the action of the Council and advising that his letter will be referred to this committee for its information and guidance.

18. **Survey of Clinics.**—Discussion was had of the survey of clinics in California as authorized by resolution adopted by the House of Delegates.

Action by the Council.—On motion duly made and seconded, the following resolution was adopted:

Resolved, That the resolution be referred to the Committee on Hospitals, Dispensaries, and Clinics for decision and action and that a report be made at the fall meeting of the Council.

19. **Health Officers and Public Health Nurses.**—Discussion was had of the appointment of a special commission to investigate the matter of scope and practice of health officers and health nurses as authorized by resolution adopted by the House of Delegates. It was felt that the Standing Committee on Hospitals, Dispensaries, and Clinics could carry on this investigation.

It was the sense of the Council that the resolution be referred to the Committee on Hospitals, Dispensaries, and Clinics and that it submit a report at the next Council meeting.

20. **Better Health.**—Invoice from Better Health incorporated, covering subscriptions to BETTER HEALTH, was presented and on motion of Harris, seconded by Cushman, the following resolution was adopted:

Resolved, That the invoice be paid.

21. **Indemnity Defense Fund.**—Letter prepared by the secretary and the general counsel explaining the status of the assignment of the funds of the Indemnity Defense Fund was presented and approved by the Council.

22. **Lay Publicity.**—Letter from Doctor Rogers calling attention to a statement published in newspapers throughout the country purporting to be made by the secretary of the American Child Health Association was presented.

Action by the Council.—On motion of Kelly, seconded by King, the following resolution was adopted:

Resolved, That the matter be taken up editorially.

23. **Medical Libraries.**—Letter from Langley Porter was presented stating that a shortage of funds was crippling the activities of the Lane Library and requesting that a sum of approximately 50 cents per member be given the Library. Doctor Kelly outlined the service offered by the Lane Library to the medical profession and gave a brief report on the sources from which funds were obtained for upkeep of the Library. The educational work carried on through the packet service of Lane Library was discussed. The financial condition of Barlow Library was then discussed, and three directors of the Barlow Library being present a request for assistance by the State Association was presented. The whole question was then discussed in detail.

Action by the Council.—On motion of Kress, duly seconded, the following resolution was presented:

Resolved, That the sum of 25 cents per member be allocated to Lane Medical Library at San Francisco and 25 cents per member to Barlow Medical Library at Los Angeles for the current calendar year only, it being specified that no precedent is established thereby.

Doctor Duffield moved that the matter be tabled; such motion was not seconded.

The chairman then called for a vote on Doctor Kress' motion and it was adopted by the Council.

24. **Examination of School Children.**—Letter from the secretary of a county medical society regarding health campaigns for school children was presented and the question was then discussed by the Council. No action was taken.

25. **Funds.**—Discussion was had of the transfer of funds of the California Medical Association to the Trustees of the California Medical Association as authorized by action of the House of Delegates at the fifty-eighth annual session, May 8, 1929.

Action by the Council.—On motion of Kelly, seconded by Duffield, the following resolution was adopted:

Resolved, That of the present reserve fund of the California Medical Association Twenty-Five Thousand Dollars (\$25,000) be transferred to Trustees of the California Medical Association pursuant to resolution of the House of Delegates adopted at the fifty-eighth annual session thereof, held May 8, 1929, at Coronado, California.

\* 26. (See footnote.)

27. **Medical Service Corporations and Hospital Associations.**—The matter of corporations practicing medicine was brought up and on motion of Harris, seconded by Hunter, the following resolution was adopted:

Resolved, That the matter of investigation of medical service corporations and hospital associations be referred to the Executive Committee.

28. **Woman's Auxiliary.**—Letter from the president of the Woman's Auxiliary asking that the California Medical Association assist the auxiliary to the extent of printing 250 copies of the auxiliary constitution and by-laws was read.

Action by the Council.—On motion of Duffield, seconded by Harris, the following resolution was adopted:

Resolved, That the Association stand the expense of publication of 250 copies of the constitution and by-laws of the Woman's Auxiliary.

29. **Director of Department of Institutions.**—Doctor Toner, Director of the Department of Institutions, was introduced to the Council by the chairman. Doctor Toner then spoke to the Council stating that he wished to cooperate with the medical profession.

30. **Adjournment.**—There being no further business the meeting adjourned.

OLIVER D. HAMLIN, *Chairman*.  
EMMA W. POPE, *Secretary*.

## EXECUTIVE COMMITTEE MINUTES

### Digest of the Minutes of the 128th Meeting of the Executive Committee Held at San Francisco on June 20, 1931

1. Roll call: One member absent.
2. Election of T. Henshaw Kelly, Chairman of the Executive Committee.
3. Financial report for the month of May read and approved.
4. Report on suit against health officer. No action.
5. General counsel authorized to reply to letter regarding medical testimony.
6. Antimedical propaganda presented. No action.
7. Presentation by Doctor Packard of county hospital problem in Kern County. Committee appointed

\* Items 16 and 26 deal with a medico-legal problem; publication has been deferred for the time being.



to confer with members of the Kern County Society with the view of presenting to the Executive Committee and the Council plans that might aid in the solution of the problem of use of county hospitals by other than indigent patients.

8. Gathering of hospital association information authorized.

9. Editor empowered to insert in CALIFORNIA AND WESTERN MEDICINE excerpts from daily journals showing votes on various public health legislation.

10. Appointment by Executive Committee of chairmen of unorganized standing committees.

11. Approval and publication of minutes of all sessions of the House of Delegates and Council at annual meetings discussed. Referred to Council.

12. Letter regarding advertising in JOURNAL read by Editor. Recommendations therein approved with exception of Book Shelf. Secretary-Treasurer instructed to report on advertising contracts to Executive Committee.

Disapproval of advertising of part-pay clinics or primary fee schedules in CALIFORNIA AND WESTERN MEDICINE.

13. Extra folio authorized by Executive Committee for not to exceed three months to expedite publication of papers from previous annual sessions.

14. Minutes of meetings of members and directors of Trustees of the California Medical Association presented.

15. Former allocation of one page space in CALIFORNIA AND WESTERN MEDICINE for Woman's Auxiliary confirmed.

16. Rules governing Clinical and Research Prize Contest referred to chairman of Executive Committee for revision and submission to Council for approval.

17. Ruling of Executive Committee that requests for legal opinions of general counsel of the California Medical Association must be sent to secretary and approved by president, secretary or chairman of the Council.

18. Progress report by general counsel on insurance matters.

19. Resolution covering reinstatement of delinquent members of the California Medical Association after acceptance of dues by county society referred for action of Council.

20. Publication in CALIFORNIA AND WESTERN MEDICINE of report of work of Kellogg Foundation referred to Council.

21. Adoption of resolutions on the death of Dr. Gayle G. Moseley.

22. Adjournment.

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#### Digest of the Minutes of the 129th Meeting of the Executive Committee Held in San Francisco on August 22, 1931

1. Roll call: One member absent.

2. Financial statements for months of June and July presented and approved.

3. Presentation by Doctor Smith of county hospital problems in Kern County. Special committee appointed at 128th meeting instructed to arrange conference with all members of Kern County Medical Society and report to Council.

4. Requests from Doctor Pomeroy and Doctor Pinkham for assistance of California Medical Association in their exhibits at the fairs to be held at Pomona and Sacramento. Reply authorized.

5. Revision of Clinical and Research Prize rules reported upon by Doctor Kelly. Secretary and chairman of Executive Committee authorized to incorporate changes suggested and present to Council for approval.

6. Letter from Doctor Leland, Director of the Bureau of Medical Economics of the American Medical Association on medical economics questionnaire presented. Reply authorized suggesting that information be better gleaned from primary sources and compilation of results sent to county societies.

7. Letter regarding establishment of Criminologic Institute in states in which none now existed received

from Bureau of Legal Medicine and Legislation. Reply authorized.

8. Presentation and approval of editorial on the provision of the Medical Practice Act, as modified.

9. Reply to letter of J. F. Doughty, M. D., re exemption of the compensation laws in agricultural industries by posting of notices, referred to general counsel for reply.

10. Letter from the Bureau of Legal Medicine of the American Medical Association regarding the "contract" between the Los Angeles Medical Society and the Metropolitan Water Company discussed. Doctor King presented the letter of the Los Angeles County Association to the Metropolitan Water Company and stated that this was in no sense a "contract" but an agreement regarding the fees to be charged by members of the Los Angeles County Medical Association in their treatment of employees of the Metropolitan Water Company. The secretary was instructed to write Doctor Woodward for the source of his information.

11. Letter regarding ownership of x-ray plates referred to general counsel.

12. Consideration of basis of complaint in action against a member of the California Medical Association. Decision that action on which suit was based was not included among any of the classes of cases which are grounds for defense by the counsel for the medical society of the State of California. Secretary authorized to so inform member.

13. Discussion was had regarding the services of the Placement Bureau. The general counsel was requested to formulate a statement to cover the situation.

14. Report by secretary on advertising for month of September.

15. Information regarding insurance matters presented. Legal counsel authorized to secure further information and report to Council.

16. Overdue advertising account of American surgical sales referred to general counsel with power to act.

17. Progress report by general counsel on hospital matters.

18. Adjournment.

#### COMPONENT COUNTY SOCIETIES

##### CONTRA COSTA COUNTY

A most interesting business and scientific meeting was held by the Contra Costa County Medical Society at Martinez on October 13, with Dr. W. A. Rowell presiding.

The scientific part of the program was ably handled by Doctors Paul Michael and Fletcher Taylor of Oakland. Doctor Michael gave a brief but complete review of endometrial hyperplasia, covering the etiology, history, pathology, differential diagnosis, diagnosis, and treatment of this condition. His paper was illustrated by appropriate lantern slides. The subject of "Nonsurgical Abdominal Pain" was presented by Doctor Taylor in a graphic manner, through the review of unusual clinical cases encountered in his private practice. The practical applications of his talk were very instructive. Much discussion of these two papers was engaged in by a large and appreciative audience.

The chairman of the Medical Economics Committee, Dr. J. M. McCullough, reported favorably on the publication of educational articles in a Richmond newspaper. The secretary was instructed to issue a letter of approval to the newspaper, which had requested the society to pass upon the ethical standards of these articles. During a lengthy discussion of the Contra Costa County preventorium, known as Sunshine Camp, many constructive ideas were submitted to promote better coöperation between the profession at large and the directing personnel of the camp. Dr. H. G. Trimble of Oakland, medical director of this camp, spoke at length on the requirements of the individual cases for eligibility to the camp and particularly stressed the importance of follow-up work after these cases have returned to their respective



locations. The work of the County Health Department in this respect was commended and the hope was expressed that better control could be obtained from the western end of the county. The question of urging the Board of Supervisors to provide hospital facilities for county patients in emergency cases throughout the county again came up for a lively discussion. To the original committee appointed to investigate this matter representation from the eastern end of the county was added in the person of Dr. J. A. Beard of Martinez and Dr. M. L. Stauffer of Pittsburg. It was indicated that the supervisors would listen favorably to any reasonable request from the County Medical Society, and the committee was instructed to draft necessary resolutions to that effect. These are to be presented to the membership at the next meeting. It was decided to hold the annual business meeting next month with the election of officers and the annual banquet early in December.

This was the best attended meeting ever held in Martinez. Refreshments were served by the nursing staff of the County Hospital. The Woman's Auxiliary was entertained at the home of Mrs. I. O. Church of Martinez.

L. H. FRASER, *Secretary*.

#### MONTEREY COUNTY

The Monterey County Medical Society met for its monthly meeting on October 9, 1931, at the Monterey Clinic, 576 Hartnell Street. Dinner was served at 6:45 p. m. At 8:15 p. m. twenty-five members and guests listened to a masterly presentation on "The Recent Advances in Poliomyelitis" by Dr. Edwin Schultz, professor of bacteriology at Stanford University. Moving pictures of experiments on monkeys illustrated part of this profoundly interesting paper. Active discussion followed the talk.

MAST WOLFSON, *Acting Secretary*.

#### SAN BERNARDINO COUNTY

The first meeting for the ensuing year of the San Bernardino County Medical Society was held at the County Hospital on October 6.

Dinner was served at 7 p. m.

The meeting was called to order by the president. There were eighty-two members and guests present.

After reading and approval of the minutes, a letter from Dr. John Graham of Barstow was read and the matter at hand was explained by the president and further developed by Doctor Graham. After a brief discussion it was explained that the Council had turned the matter over to the medical advisory board of the County Hospital.

The new county health officer, Dr. E. B. Godfrey, was then introduced.

A motion was made by Dr. C. G. Hilliard and seconded by Dr. S. Richards that the dues for the ensuing year be fixed at \$15.

The president, Dr. H. G. Hill, then briefly reviewed the activities of the past year and delivered a brief eulogy about deceased members, those being Doctors G. G. Moseley, C. P. Engel, and M. J. Hart.

Dr. Philip Savage then made a short statement regarding the opening of the Sisters' Hospital in San Bernardino.

The list of the newly elected and appointed officers was then read and the secretary was instructed to cast a ballot, which was done.

Dr. George Landon, the new president, was then inducted into office by the retiring president, Dr. H. G. Hill, and from then on Doctor Landon took charge.

The address of the retiring president was then entered upon, his subject being "The Physician and the Care of the Public." Following this the speaker of the evening, Dr. Carl R. Howson, president of the Los Angeles County Medical Society, delivered an address entitled "The Future of Medicine." The subject was then thrown open to a general discussion, which was led by the president.

Thanks were extended to the speaker of the evening after which the meeting was adjourned at 10 p. m.

The following is a list of officers elected for the coming year for the San Bernardino County Medical Society:

Officers—President, George Landon, San Bernardino; first vice-president, Fred Moor, Loma Linda; second vice-president, A. L. Weber, Upland; secretary-treasurer, E. J. Eyttinge, Redlands.

Board of Councilors—Philip Savage, San Bernardino; C. L. Emmons, Ontario; D. B. Williams, Colton; H. G. Hill, Redlands; J. H. Evans, Highland.

Delegates—Philip Savage, San Bernardino; D. B. Williams, Colton; D. C. Mock, Redlands.

Alternates—Fred Moor, Loma Linda; K. L. Dole, Redlands; C. L. Emmons, Ontario.

E. J. EYTINGE, *Secretary*.

#### SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held in the St. Francis Hospital on Monday evening, October 12, with President Ullmann in the chair.

After reading and approval of the minutes of the previous meeting, with the consent of the society the president reversed the order of business.

The transfer card of Dr. Marion O. Hooker, 224 East Mission Street, Santa Barbara, from the San Francisco Medical Society was read, and also the application for membership of Daniel M. Clark, 1520 Chapala Street, Santa Barbara. Upon ballot both applicants were unanimously elected into membership.

An invitation from Dr. August L. Mollath of Santa Maria, secretary of the staff of the Santa Maria Hospital, was read, inviting the society to hold the November meeting at Santa Maria at the Santa Maria Club. After discussion it was unanimously carried that the November meeting be held in Santa Maria and that the Santa Maria committee provide the program.

The president then appointed a Resolutions Committee, consisting of Dr. Rexwald Brown (chairman), Dr. W. D. Sansum, and Dr. M. Thorner.

Dr. E. L. Markthaler was appointed chairman for the Welfare Board in the place of Dr. John B. Manning, deceased.

The scientific program was opened by Dr. Ira M. Bartle of San Luis Obispo, who gave a most interesting talk on "Actinomycosis," illustrated by lantern slides. The paper was then discussed by Doctors Geyman, Sansum, and Henderson.

Doctor Profant then gave a paper on "The Management of Mastoiditis and Petrositis," illustrated with lantern slides.

Dr. Daniel M. Clark then followed with an interpretation of the roentgen pictures shown by Doctor Profant. Doctors Lewis, Means, and Hunt then discussed the paper.

WILLIAM H. EATON, *Secretary*.

#### STANISLAUS COUNTY

The regular meeting of the Stanislaus County Medical Society was held on October 9 at Hotel Hughson, Modesto.

After reading and approval of the minutes of the September meeting, a report from the Hospital Committee, headed by Doctor McPheeters, was given regarding the payment by the county to private hospitals for first-aid service rendered by them. Doctor McPheeters stated he did not feel that the county would pay for first-aid services, as the doctors were free to send such cases to the County Hospital.

Motion made and carried that this committee be discharged, the work assigned to it having been completed.

A letter was read from the Stanislaus County Nurses' Association regarding the opening of an official nurses registry in Modesto. Motion made and carried that the secretary secure a copy of the by-laws regarding the requirements of a nurses' registrar.

On motion, duly seconded and carried, Doctor Roscoe of Newman was accepted as a member of the Stanislaus County Medical Society.



Dr. Joseph Catton gave a very interesting talk on "Medical Aspects of Recent Murder Cases."

DONALD L. ROBERTSON, *Secretary*.

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#### VENTURA COUNTY

The regular monthly meeting of the Ventura County Medical Society was held on September 8 at the Ventura County Clinic building. The meeting was called to order by Vice-President Smolt, and the minutes of the previous meeting read and approved.

Members present were: Doctors Achenback, Bardill, W. S. Clark, Hendricks, Smolt, Welch, Bianchi, Shore, and Armitstead.

The meeting consisted solely of business of the society. There was some discussion as to the scientific programs for the meetings and, after some discussion, the motion was put by Doctor Welch that two members be appointed to be responsible for the program for the remaining months of this year. The motion was seconded by Doctor Clark, and carried. Thereupon Doctors Clark and Smolt were appointed for the month of November.

R. B. ARMITSTEAD, *Secretary*.

#### CHANGES IN MEMBERSHIP

##### New Members

*Alameda County*—William O. French, Jr., Louise Linscott Hector, La Fayette Parkinson Monson, Edmund Henry Padden, Margaret Sisson, Edith Elizabeth Thompson, Alvin Pontus Wold, William F. Woller.

*Contra Costa County*—Fred Porter Nevius, Melvin Lackner Stauffer.

*Kern County*—Arthur George Elvin.

*Los Angeles County*—

|                         |                        |
|-------------------------|------------------------|
| Edgar Aasland           | Roy Carlyle McLaughlin |
| John J. Baker           | Roland Clifford Nelson |
| Thomas Cottrell Brooks  | Lloyd E. Rogers        |
| Clair Peter Cosgrove    | W. G. Scanlon          |
| Alvin George Ford       | Reynolds D. Smith      |
| Louis Leonard Gewertz   | Frederic N. Tyroler    |
| William Merriott Gibbs  | Isaac Jack Vidgoff     |
| Frederick Charles Hagar | Hubert Turner Wilkin   |
| Robert B. Hope          | Louis K. Zimmer        |
| Greenshaw Mandel        |                        |

*Marin County*—Herbert N. Every.

*San Bernardino County*—Gordon L. Helstrom.

*San Diego County*—Carl F. Birkenstock.

*San Francisco County*—Anthony A. Ferrante.

##### Resignations

Edna P. Burgeson, from San Francisco County.

##### Transfers

Roelf Barkema, from San Diego to San Bernardino County.

Ambrose E. Edgerton, from Kern to San Francisco County.

William H. Lawler, from Lassen-Plumas to Monterey County.

Francis P. O'Hara, from San Francisco to San Diego County.

Thomas J. Rankin, from San Diego to San Bernardino County.

Charles E. Sisson, from Napa to San Diego County.

##### Deaths

**Coleman, Herbert Rockwood.** Died at San Francisco, September 7, 1931, age 41 years. Graduate of University of Kansas School of Medicine, Lawrence, Kansas City, 1917. Licensed in California, 1920. Doctor Coleman was a member of the Napa County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Donnelly, Edward Francis.** Died at Napa, September 20, 1931, age 69 years. Graduate of Cooper Medical College, San Francisco, 1894. Licensed in California, 1894. Doctor Donnelly was a member of the Napa County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Hamilton, Jo.** Died September 19, 1931, age 57 years. Graduate of Cooper Medical College, San Francisco, 1903. Licensed in California, 1903. Doctor Hamilton was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

**Keller, Peter Martin.** Died at Glendale, October 1, 1931, age 58 years. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, 1899. Licensed in California, 1915. Doctor Keller was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

#### OBITUARIES

Geoffrey Joseph Fleming, M. D.

1873-1931

Dr. Geoffrey Fleming, well-known urologist of Ontario, California, died on October 9 of pneumonia at his home, 231 Armsley Square.



GEOFFREY JOSEPH FLEMING

Doctor Fleming was graduated April 19, 1898, from the University of Illinois and on December 1 of that year was made a member of the house staff of the Cook County Hospital, Chicago, of which city he was a native. Later, as a mark of his high standing and ability, he was admitted to membership in the American College of Surgeons.

Doctor Fleming had been a resident of Ontario for the last sixteen years, having practiced previously in Spokane, Washington, in 1915. During the course of his professional work here, he endeared himself to the hearts of hundreds.

Doctor Fleming was a member of the San Bernardino County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Doctor Fleming is survived by his widow, Mrs. Harriet Sonn Fleming, president of the California State Nurses Association, and one daughter, Mrs. Dorsey K. Glover of Upland.

The sympathy of Doctor Fleming's colleagues and friends is extended to his wife and daughter.



**Palmerston Cornick Campbell, M. D.**  
1868-1931

Dr. P. C. Campbell, our esteemed friend and co-worker, has joined the innumerable caravan in answer to the call of our Great Healer above.

He was taken from us in early middle life when he had just arrived at the point where he could enjoy the fruits of a well-earned career.

Doctor Campbell was known among his professional brethren as an honorable worker in the field of medicine—earnest, devoted, conscientious, kind-hearted, and skillful. His life was upright and manly throughout. A better example of the good physician it would be difficult to find. Quiet and unostentatious in demeanor, he compelled the respect of all who knew him.

His death was sudden, quiet, and in the manner in which he lived.

Doctor Campbell was sixty-three years of age at his death. He was born in Suisun, California, went through the schools there, attended Toland Medical College (now the University of California), and graduated in 1890 from St. Joseph's Medical College in Missouri. He first engaged in practice in Vacaville, near where he was born, joined the gold rush to Alaska in 1898, returned and returned to practice in Richmond in 1900, where he has lived continuously with his family until his death. He leaves a wife, three daughters and two sons to mourn his loss. He was known to be a good husband and a kind father.

In his life he was honored and respected by all who knew him. May we all leave a record as worthy.

C. R. BLAKE, M. D.

**CANCER COMMISSION OF THE CALIFORNIA MEDICAL ASSOCIATION**

With the creation of a permanent Cancer Commission by the House of Delegates at the San Francisco meeting,\* the California Medical Association undertook the control of public health work in the field of cancer, heretofore carried on only by outside agencies. The functions of the Commission outlined by the House of Delegates are to be the encouragement of (1) the provision of adequate postgraduate medical education in the early diagnosis and treatment of cancer, (2) the provision of better clinical facilities for the care of cancer patients, (3) the extension and coördination of research work on cancer.

All of the members of the newly appointed commission felt that the aim of its first work should be the promotion of a better agreement among members of the medical profession on the correct handling of cancer patients or patients suspected of having cancer. Experience has shown that there are two periods of delay—one between the time when symptoms first appear and the time when a physician is first consulted, and another between the time when a physician is first consulted and the time when adequate diagnosis is made and treatment instituted. It is the second period of delay which is the responsibility of the doctor, and the medical profession should prepare itself to cut this delay to a minimum before further public education is carried on.

As its first work of organization, therefore, the Commission has requested a large group of surgeons, pathologists, radiologists, internists, and specialists to serve on a committee of "Professional Information and Medical Education," divided into subcommittees on various types and locations of cancer. Each subcommittee has been requested to survey its particular field and prepare a statement of the facts of early symptomatology, of correct methods of diagnosis and of adequate treatment procedures which it feels can and should be accepted by the medical profession at the present time. It is intended to submit each of these statements to the entire personnel of the large

committee, including a broadly constituted Committee of Reference, for criticism and suggestions.

It is inevitable that in a field of advancing knowledge disagreement will be encountered. When, for instance, two methods of treatment of a given type of cancer are widely accepted, both may be laid down as acceptable in the committee statements. Care will need to be exercised to avoid discouragement of experimental advance by an attempt to fix permanent standards on a basis of present knowledge; but certainly some facts have been conclusively established by the experience of the world up to the present time, and, such as they are, these facts should be known and accepted by every doctor who deals with cancer. Nothing is to prevent revision of our ideas in the future on the basis of new facts or experience.

Having collected and correlated the fundamentals of diagnosis and treatment of cancer upon which we should all agree, other committees—committees on "extension courses"—will be entrusted with making this material readily available to every physician in California, through the columns of CALIFORNIA AND WESTERN MEDICINE and by other printed matter, through undergraduate and postgraduate special courses and lectures, through county medical societies, etc. The Commission will report the progress of its work and arrange for the preparation of short articles on cancer in a special column of CALIFORNIA AND WESTERN MEDICINE from month to month.

Headquarters for the Commission's work have been established in connection with the California Medical Association offices at 450 Sutter Street, San Francisco.

The personnel of the Cancer Commission is as follows:

Charles A. Dukes, chairman; Lyell C. Kinney, vice-chairman; Alson R. Kilgore, secretary; Harold Brunn, William Ophüls, Henry J. Ullmann, Orville Meland, A. Herman Zeiler, and Clarence G. Toland.

Following is a list of chairmen and secretaries of committees so far organized. Note of further appointments will appear from time to time in this column:

*Committee on Professional Information and Medical Education*—Emile Holman, general chairman; Otto H. Pflueger, executive secretary.

*Subcommittees on Extension Courses*—Northern California: Zera E. Bolin, chairman; J. Homer Woolsey, vice-chairman; F. H. Rodenbaugh, secretary. Southern California: Harlan Shoemaker, chairman; J. A. Pollia, vice-chairman; C. T. Sturgeon, secretary.

*Radiology Committee*—William E. Costolow, chairman; R. G. Taylor, secretary.

*Pathology Committee*—Charles L. Connor, chairman; Robert A. Glenn, secretary.

**CLINICAL SUBCOMMITTEES**

1. *Breast Tumors*—Lemuel P. Adams, chairman; George D. Maner, secretary.

2. *Skin and Mouth Tumors*—H. Sutherland Campbell, chairman; H. J. Templeton, secretary.

3. *Gynecological Tumors*—Edward N. Ewer, chairman; Alice F. Maxwell, secretary.

4. *Genito-Urinary Tumors*—Charles P. Mathé, chairman; George Reinle, secretary.

5. *Connective Tissue Tumors*—Emmet Rixford, chairman; J. A. Pollia, secretary.

6. *Bone Tumors*—Edwin I. Bartlett, chairman; Sylvan L. Haas, secretary.

7. *Gastro-Intestinal Tract Tumors*—J. Homer Woolsey, chairman; R. T. Sutherland, secretary.

8. *Rectal Tumors*—W. H. Kiger, chairman; Dudley Smith, secretary.

9. *Eye, Ear, Nose, and Throat Tumors*—Dewey R. Powell, chairman; Frank S. Baxter, secretary.

10. *Chest Tumors*—Frank S. Dolley, chairman; Selling Brill, secretary.

11. *Nervous System Tumors*—Howard Fleming, chairman; F. L. Reichert, secretary.

ALSON R. KILGORE, Secretary.

\* See June 1931 California and Western Medicine, page 432 (Resolution No. 2) and page 436 (IX, b, Resolution No. 2); and July 1931 California and Western Medicine, page 60 (Item 19).



## THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION\*

### News Notes

*Auxiliary Department in Bulletin of American Medical Association.*—Mrs. Walter Jackson Freeman of Philadelphia, national president-elect, went to Europe the first of August expecting to return the last of September, but has been detained in Munich indefinitely by the illness of her son. However, Mrs. Freeman is taking care of her department in the *Bulletin of the American Medical Association* for October.

*Value of Bulletin of the American Medical Association.* Every physician who receives the *Journal of the American Medical Association* also receives the monthly Bulletin, which carries national Auxiliary news. Each Auxiliary member should read the Bulletin. Anyone may subscribe for it for fifty cents per year.

*The Kentucky Auxiliary.*—Our national president, Mrs. A. B. McGlothlan, attended the annual meeting of the Auxiliary to the Kentucky State Medical Society at Lexington, Kentucky, September 7-10. She reports the following interesting features of that Auxiliary.

Kentucky has a standard of excellence for her component auxiliaries. Points of excellence are acquired for various attainments, such as the study of the state medical and health laws, the use of the national Auxiliary study programs, participation in the Jane Todd Crawford Memorial, review of each auxiliary of Gossett's "What the Public Should Know About Childbirth."

In Kentucky, each month, from four broadcasting stations a ten-minute health talk is given. Various physicians of the State Medical Association are selected to give these talks.

The Kentucky Auxiliary promoted a contest, carried on in ten counties, in which a prize was given to the school boy or girl writing the best essay on the value of a county health unit.

*Value of a County Health Unit.*—The value of the county health unit is emphasized by the New York State Health Commission reporting on the health needs of that state which require legislative action before further progress can be made. The first item of the program is "A state-wide system of county health departments (the county health unit) with full-time health officers (to be required by law)."

If your Auxiliary is not informed of the nature and value of the county health unit, devote a meeting to the use of the study program on that subject supplied by the national Auxiliary.

*Tennessee Auxiliary Radio Health Talk.*—In Tennessee the State Auxiliary promotes a radio health talk every week, securing the talk from the American Medical Association in Chicago and arranging with some physician to give the talk.

*American Medical Association Radio Talks.*—In this connection it is worth knowing that the American Medical Association will supply five-minute radio talks on seventy-two different health topics.

*Florida Journal Report of National Auxiliary.*—The Woman's Auxiliary department in the Florida state journal has given its readers recently, in two con-

secutive months, interesting reports of the Philadelphia convention. One dealt with the convention at work, and the other with the convention at play. Such reports help to create an interest in the Auxiliary as an organization with national significance.

*Organization in Texas.*—The president of the Texas Auxiliary, Mrs. H. R. Dudgeon, reported in Waco, July 14, that Texas had forty-three organized and working auxiliaries, and more coming. A good organization record to emulate!

*Four Views of National Auxiliary.*—To give the Auxiliary women of Virginia a real knowledge of our national organization, the president, Mrs. J. Allison Hodges, is presenting serially "A Panoramic View of the Woman's Auxiliary to the American Medical Association in Four Articles." These admirable articles were prepared last year for Mrs. Hunsberger's administration as follows: The eastern district, Mrs. Wayne Babcock; north central district, Mrs. James Blake; southern district, Mrs. C. W. Garrison; western district, Mrs. James F. Percy.

*Auxiliary Service to Medicine Through Work in Lay Organizations.*—In his message to the Woman's Auxiliary to the Colorado State Medical Association, Dr. E. S. Judd, president of the American Medical Association, reminds the women of the opportunities for service to scientific medicine through their membership in lay organizations. He quotes the president of the Maine Medical Association as saying a systematic propaganda was being carried out for the purpose of promoting irregular medical practices. This is done by sending representatives to women's clubs and other organizations to disseminate the information. "If women's auxiliaries," says Doctor Judd, "will assume the responsibility of helping the members of their clubs, and also the Parent-Teacher associations keep informed regarding the proper medical practices, they could perform a great service to their communities."

*Legislative Service Rendered by Colorado Auxiliary.*—Colorado is one state in which distinct service in medical legislation has been rendered by the Woman's Auxiliary to the State Medical Association.

*Suggestions for Programs.*—The Missouri program chairman suggests: What Is New in Medicine? In Surgery? In Anesthesia?

*In California* the program chairman, Mrs. F. E. Coulter, suggested two estimable eight months' programs for county auxiliaries. The first is for Auxiliaries in counties where a County Health Unit exists. The second is for Auxiliaries in counties where no County Health Unit exists.

Since they are not copyrighted, we are paying Mrs. Coulter the compliment of passing them on:

#### FIRST SET

- September—Why an Auxiliary—Speaker, if possible, a state officer, preferably the president.
- October—Working Principles of Our Own County Health Unit—The county health officer.
- November—Common Defects in Children or Contagion and Immunization—Member using National Auxiliary material.
- December—Teeth and Their Relation to Health—School dentist.
- January—What Are We Doing for the Physically Underprivileged Child—Selected speaker.
- February—Mental Hygiene—Local psychiatrist or selected speaker.
- March—(a) Book Review: "The Human Mind," Menninger—Auxiliary member. (b) What Our County is Doing for the Mentally Ill—Selected speaker.
- April—(a) Book Review: "Biography of the Virgin Mind," Dakin—Auxiliary member. (b) Our State Health Laws—Selected speaker.

\* As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of their officers should be forwarded to Mrs. Louis H. Dyke, Chairman of Publicity and Publications Committee. Brief reports of county auxiliary meetings will be welcomed by Mrs. Dyke and must be sent to her before publication takes place in this column. For lists of state and county officers see advertising page 6. The Council of the California Medical Association has instructed the editors to allocate one page in every issue for Woman's Auxiliary notes.



SECOND SET

- September—Same as in first set.
- October—Advantages of County Health Unit—Member using National Auxiliary material.
- November—Common Defects in Children—Member using National Auxiliary material.
- December—Contagion and Immunization — Member County Medical Society.
- January—Local Health Problems—Round table.
- February—What Our State Is Doing for the Mentally Ill—A superintendent of State Hospital.
- March—Book Review: "The Human Mind, Menninger—Auxiliary member.
- April—Book Review: Biography of the Virgin Mind," Dakin—Auxiliary member.
- Our State Health Laws—Selected speaker.

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In Los Angeles the October program for the Woman's Auxiliary presented:  
How Los Angeles County Meets the Problem. Brief talks by: Dr. W. A. Hodges, La Vina Sanatorium; Dr. Mumford Smith, Barlow Sanatorium; Dr. William H. Bucher, Olive View Sanatorium; Dr. Karl Fischel, Jewish Sanatorium, Duarte.  
How Much Shall the Doctor Charge?—Dr. John V. Barrow.

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The programs of all meetings should include as a "roll call" medical current events, new discoveries, accomplishments, and happenings.

ELLA CLARK DYKE,  
Chairman Publicity and Publications Committee.

NEVADA STATE MEDICAL ASSOCIATION

- R. P. ROANTREE, Elko.....President
- A. C. OLMSTED, Wells.....President-Elect
- E. E. HAMER, Carson City.....First Vice-President
- W. H. FROLICH, East Ely.....Second Vice-President
- HORACE J. BROWN, Reno.....Secretary-Treasurer
- S. K. MORRISON, W. L. SAMUELS.....Trustees

COMPONENT COUNTY SOCIETIES  
WASHOE COUNTY

The Washoe County Medical Society met in the State Building, Reno, September 8, at 8 p. m.  
In the absence of the president, Doctor Walker presided.  
The cinema on "Spinal Anesthesia," kindly furnished by the San Francisco branch of the Metz Laboratories, was shown. Spinocain and novocain products with their effects upon the sensory nervous system when injected into the spinal canal were beautifully differentiated. The technique of administering both products, also the management of the operated patients were graphically shown by the cinema. The pictures were highly instructive.  
Next followed an informal talk by Doctor Schofield of Hobart Mills on his recent experience as a medical student in Vienna. The first part of the talk was devoted to the historical and cultural conditions of the city. Then Doctor Schofield spoke of the American Medical Association there and the means of obtaining entrance to courses. The number of students has greatly diminished in the last few years, owing to the world-wide financial depression. The clinics having the greatest number of students were the ear, nose and throat, and urological clinics. The superabundance of material presented for study was, in the speaker's opinion, the greatest reason for foreign medical attendance. All lectures could be heard in English, and the fees for same were moderate.  
The talk was greatly enjoyed and we hope for more of the same kind in the future.  
There were twenty-one doctors present.

The regular monthly meeting of the Washoe County Medical Society was held in the State Building on the evening of October 13, with Doctor Sullivan, vice-president, presiding.  
After disposing of the usual routine Dr. G. R. McGee of Yerington gave an extemporaneous talk on Huntington's chorea. He exhibited a patient fifty-three years of age, male, who twelve years previously had developed the disease. The speaker differentiated between the usual chorea of children and adults, which is known as Sydenham's chorea and the type exhibited known as Huntington's chorea.

In the former disease it is mainly a neurosis with some underlying defect, frequently a heart lesion. Under proper supervision the Sydenham's chorea gets well. Dr. Irvin W. Long in 1863 was first to call attention to the latter type of chorea and termed it "chronic hereditary chorea." But Huntington of Ohio in 1872, and his grandfather, both physicians, had observed this malady run through several generations and Doctor Huntington was the first to characterize the disease as assuming three conditions, viz., heredity, psychic causes, and late appearance.  
Doctor McGee pointed out that the man exhibited alleged that his attacks dated from the witnessing of a suicide when he was forty-three years old.  
However, Osborn traced the disease in a family through two centuries.

The pathological underlying cause is not clear. Some ascribe it to definite lesions of the corpora striata. It is incurable and usually terminates in dementia. The peculiar staccato speech and sharp, jerky convulsive movements characterize the disease from other types of nervous disease.  
Dr. M. A. Walker of Reno gave the society a fine travelogue on his recent trip to Japan and Hawaii. While in Japan Doctor Walker visited several hospitals and had opportunity to observe the Japanese physicians and their methods. In Honolulu Doctor Walker was impressed by the Thursday morning conference held in the Queen's Hospital. The conference was in the shape of an informal discussion, not on the dead, but on the progress of cases in the hospital.  
Both papers were well received, and the thanks of the society were tendered the speakers.  
THOMAS W. BATH, Secretary.

UTAH STATE MEDICAL ASSOCIATION

- R. A. PEARSE, Brigham City.....President
- F. M. McHUGH, Salt Lake City.....President-Elect
- L. R. COWANS, Salt Lake City.....Secretary
- J. U. GIESY, Kearns Building, Salt Lake City.....Associate Editor for Utah

UTAH STATE MEDICAL ASSOCIATION  
ANNUAL SESSION OF 1931  
PROCEEDINGS OF THE HOUSE OF DELEGATES\*

First Meeting of the House of Delegates

- Held at Stewart Building, University of Utah, Salt Lake City, Utah, Wednesday, September 9, 1931, at 12:15 p. m.
- I. Call to Order.—The president, William L. Rich, M. D., called the meeting to order.  
\* \* \*
  - II. Roll Call.—The secretary called the roll and declared a quorum to be present.  
\* \* \*
  - III. Reading of Minutes.—On motion, duly made, seconded and unanimously carried, reading of the minutes was dispensed with, inasmuch as the entire proceedings were published in full in CALIFORNIA AND WESTERN MEDICINE.
- \*Papers by Belle A. Gemmell, M.D., and O. F. McShane, Esq., will be printed in subsequent issues of California and Western Medicine.





That society went on record as being of the opinion that our delegate to the American Medical Association should present the situation to the House of Delegates of the American Medical Association with a view of getting a ruling as to what the ethical practice of associate membership would be. We have men who are not M. D.'s but who are working along medical lines who would appreciate associate membership in the Utah State Medical Association.

Moved by Doctor Critchlow that our delegate to the American Medical Association be instructed to take this matter up according to the way it was taken up in the Salt Lake County Medical Society.

Motion was seconded and unanimously carried.

(d) *Regarding "Non-Service" Medical and Hospital Benefits to World War Veterans.*—Dr. E. D. Le Compte stated that he wished to refer to the report made by himself at the general session wherein was the following statement: "It was further resolved that each state medical association be requested to form a committee whose duty it will be to approach the state and local Legion posts throughout the country with a view to securing the adoption of this program by them."

Doctor Le Compte felt it was part of his work as your delegate to the American Medical Association to put these matters before the Utah House of Delegates. He moved that the House of Delegates appoint a committee to present to the local and state Legion posts the resolution adopted by the American Medical Association as follows:

That Congress be called upon to abandon the policy of rendering medical and hospital benefits to veterans of the World War with nonservice connected disabilities and to substitute therefor a plan of disability insurance benefits with the following provisions:

First: The creation of a bureau of disability insurance in the Veterans' Bureau as now constituted.

Second: The issuance of a disability insurance policy to each veteran with a disability benefit clause, as follows:

(a) The payment of a weekly cash benefit during a period of total disability; and

(b) The payment of liberal hospital benefit sufficient to cover the hospital expenses of a veteran during a period of hospitalization for any disability; and

(c) Such other provisions as are necessary for the proper administration of the act.

President Rich stated he would refer this to the Committee on Public Relations for action—when that committee is appointed.

Dr. Le Compte stated that when this committee was ready to undertake this work that they come to him for more and further information.

(e) *Regarding a "Cancer Survey" of the State of Utah.*—J. P. Kerby called attention to the fact that Utah had had several surveys of conditions in this state arising from public health matters. Thus, Utah had had a goiter survey. He understood that the American Cancer Society would be very glad to make a survey in the State of Utah with a view of determining cancer in its various forms. This had been done in various states. Doctor Kerby proposed the following resolution:

Resolved, That the Utah House of Delegates go on record as inviting the American Cancer Society to make a survey of cancer conditions in Utah, at no expense to the Utah State Medical Association.

Motion was seconded and carried unanimously.

\* \* \*

**IX. Election of Officers.**—President Rich then announced that the next order of business would be the election of officers. He appointed as tellers: O. J. LaBarge, M. D., and R. A. Pearse, M. D.

The following officers were elected:

*President-elect*, F. M. McHugh, M. D., Salt Lake.

*First Vice-president*, George Fister, M. D., Ogden.

*Second Vice-president*, J. G. McQuarrie, M. D., Richfield.

*Third Vice-president*, George H. Christy, M. D., of Vernal.

*Secretary*, Leland R. Cowans, M. D., Salt Lake.

*Treasurer*, F. H. Raley, M. D., Salt Lake.

**X. Election of Councilors.**—William T. Elliott of Helper was elected councilor for the Third District. President Rich then announced the officers for the coming year as follows:

*President*, R. A. Pearse, M. D.

*President-elect*, F. M. McHugh, M. D.

*First Vice-president*, George Fister, M. D.

*Second Vice-president*, J. G. McQuarrie, M. D.

*Third Vice-president*, George H. Christy, M. D.

*Secretary*, Leland R. Cowans, M. D.

*Treasurer*, F. H. Raley, M. D.

*Councilor First District*, E. R. Dumke, M. D.

*Councilor Second District*, John Z. Brown, M. D.

*Councilor Third District*, William T. Elliott, M. D.

*Associate Editor*, J. U. Giesy, M. D.

*Delegate to American Medical Association*, Edward D. LeCompte, M. D.

*Alternate Delegate*, Sol G. Kahn, M. D.

The new officers were thereupon escorted to the platform and introduced to the House of Delegates.

\* \* \*

**XI. Adjournment.**—There being no further business the meeting adjourned.

WILLIAM L. RICH, M. D.,  
*President.*

M. M. CRITCHLOW, M. D.,  
*Secretary.*

### Report of the Secretary

By M. M. CRITCHLOW, M. D.

The thirty-sixth annual meeting of the Utah State Medical Association was held in Salt Lake City on September 9, 10, and 11, 1930. There were 223 physicians registered at the Memorial House.

The following officers were elected and have served faithfully during the past year:

Officers—President, William L. Rich; president-elect, R. A. Pearse; treasurer, F. H. Raley; first vice-president, J. P. Kerby; second vice-president, L. H. Stookey; third vice-president, A. H. Aland.

Councilors—First district, E. R. Dumke; second district, John Z. Brown; third district, William T. Elliott.

Delegate to the American Medical Association—Dr. E. D. LeCompte.

Alternate delegate—Sol G. Kahn.

Your secretary has now served his third and last year. At the meeting last year (1930) we had 365 members and at present we have 363 members, represented by the counties as follows:

|                                       |     |
|---------------------------------------|-----|
| Boxelder County Medical Society.....  | 8   |
| Cache Valley Medical Society.....     | 18  |
| Carbon County Medical Society.....    | 14  |
| Central Utah Medical Society.....     | 21  |
| Salt Lake County Medical Society..... | 221 |
| Uintah County Medical Society.....    | 5   |
| Utah County Medical Society.....      | 32  |
| Weber County Medical Society.....     | 45  |

Salt Lake County has three associate members who are not members of the Utah State Medical Association.

It is with deep regret that we mourn the deaths of the following men:

Dr. Mark Brown, Ogden, September 1930.

Dr. I. A. E. Lyons, Salt Lake, March 29, 1931.

Dr. C. M. Benedict, Salt Lake, August 29, 1931.

It was decided to have the postgraduate course at the time of the state meeting and a very good course has been arranged.

During the year all the county societies, except Uintah, were visited by one or more of the officers of the Association. In the fall a meeting of Cache Valley, Boxelder, and Weber counties was held jointly at Brigham City at which Dr. William Bender of San Francisco was the principal speaker. In February Carbon County invited the whole state to a meeting in Price at which Dr. R. L. Dresel of San Francisco was the principal speaker. Also, in May of



this year Weber County invited the entire state to a meeting in Ogden at which Doctor Coffey was the speaker.

All of these meetings were highly successful, and it is hoped that more of these intersectional meetings will be held in the future.

The Council has had several meetings with the Industrial Commission of the State of Utah. Difficulties have been ironed out and every member of the State Association has been informed of the Commission's desires and have been requested to comply with their wishes.

The White House Conference on Child Welfare organized a state committee last spring, and your president, Doctor Rich, has been very active in organizing the medical profession of the state to carry on this work.

In February the State Medical Association broadcast health topics over the radio twice a week over KDYL, which continued until the end of June. Since then the broadcasts have been given over KSL, twice a week in the evenings, but at present have been discontinued because of inability to get a suitable time over that station. KDYL's time was given by the Clover Leaf-Harris Dairy and KSL's time was given by that station itself.

At a meeting of the state secretaries in Chicago last fall, the economic condition of the medical profession was discussed at great length. The most interesting paper was given by Dr. William H. Ross, ex-president of the Medical Society of the State of New York. He explained that a doctor has a dual occupation. First, his personal relationship to his patient. In other words, the practice of medicine in which his future is secure. Second, his responsibility in purely civic matters and his obligation to take part in public medical service and to give guidance to other organizations trying to deal with public health problems. The Medical Society of the State of New York has created a Public Relations Committee consisting of five men, all of whom have had considerable experience in matters of this kind. One new man is appointed and one taken off each year. There is also a Public Relations Committee in each county, whose duty it is to make a survey of the medical problems and also of the purely professional economic problems, and act in liaison capacity between the laity and the profession.

Time does not permit me to tell of the splendid achievements of this committee, but in view of the present economic disturbance in the medical profession it is recommended that a committee of five, preferably ex-presidents of the Utah State Medical Association, or men of experience in civic affairs, be appointed as a Public Relations Committee, one man to drop out and one to be reappointed each year, to study the economic conditions as they affect the medical profession, and report to the House of Delegates each year or to the Council as often as necessary, with their recommendations.

In the past the Utah State Medical Association has been fortunate in having men in the president's chair who have been natural leaders. However, with the present system of electing the president-elect, it is possible that this necessary quality cannot always be present. In the future, therefore, it is recommended that, regardless of the part of the state the man lives in or regardless of his hospital affiliations, the quality of leadership be the prime requisite in the choice of the president-elect, for it is very evident that there are dangerous times ahead and this quality will be very much in need.

Financial affairs of the Association are in a very critical condition. The activities of the Association have increased. The annual meetings have been more expensive without an appreciable increase in membership. During the past year a strong effort was made to increase the membership but the response was very feeble.

It is recommended that at this meeting the House of Delegates increase the state dues from five to seven and a half dollars (\$5 to \$7.50).

Your secretary wishes to express his appreciation to every member of the Association for the courtesy and coöperation they have extended him and the other state officers. Three years is a long time and I have enjoyed every minute of it, and it is my hope that the new secretary will enjoy the work as much as I have done and will be extended the same co-operation. I am not a candidate for reelection.

\* \* \*

Report of the Treasurer

By F. H. RALEY, M. D.

Covering period from June 30, 1930, to and including August 31, 1931.

RECEIPTS

|                                                                             |            |
|-----------------------------------------------------------------------------|------------|
| Cash in National Copper Bank, checking account, July 1, 1930.....           | \$1,222.91 |
| Additional receipts after June 30, 1930, from membership dues for 1930..... | \$ 115.00  |
| From Component Society membership dues for 1931.....                        | 1,800.00   |
| From 1930 Banquet Committee.....                                            | 284.00     |
| Rebate on president's reception.....                                        | 18.84      |
| Borrowed from savings account.....                                          | 300.00     |
| Total receipts .....                                                        | 2,517.84   |
|                                                                             | \$3,740.75 |

DISBURSEMENTS

|                                                                                                               |            |
|---------------------------------------------------------------------------------------------------------------|------------|
| Three hundred and sixty-eight subscriptions to California and Western Medicine .....                          | \$1,466.00 |
| Expenses incident to 1930 meeting.....                                                                        | 1,042.26   |
| Allowance—Delegate to American Medical Association .....                                                      | 150.00     |
| Allowance to secretary of Utah State Medical Association.....                                                 | 250.00     |
| Allowance for secretary's amanuensis....                                                                      | 140.00     |
| Telephone and telegraph expenses.....                                                                         | 54.70      |
| Premium on treasurer's bond.....                                                                              | 9.60       |
| Flowers to deceased members' funerals..                                                                       | 20.59      |
| Printing and binding .....                                                                                    | 99.15      |
| Auditor's bill.....                                                                                           | 79.64      |
| Money advanced for 1931 session.....                                                                          | 75.00      |
| Total .....                                                                                                   | \$3,386.85 |
| Balance .....                                                                                                 | \$ 353.90  |
| Less charge of one dollar for balance less than \$100 in November 1930.....                                   | 1.00       |
| Balance in bank August 31, 1931.....                                                                          | \$ 352.90  |
| There are accumulated and unpaid bills to date amounting to \$239.52, including treasurer's salary for 1931.  |            |
| It will be noted also that the \$300 borrowed from the savings account has not been returned to that account. |            |

SAVINGS ACCOUNT

|                                 |          |
|---------------------------------|----------|
| Balance in savings account..... | \$794.48 |
|---------------------------------|----------|

HARLOW BROOKS FUND

This is composed of four one thousand dollar Utah Power and Light bonds (6 per cent)—series due May 1, 1922, bearing interest of \$240 per year. This interest as paid is credited to savings account.

\* \* \*

Report of the Committee on Public Health

By EZRA C. RICH, M. D., *Chairman*

A meeting of the Committee on Public Health was held December 28, 1930. There were present: Dr. Ezra C. Rich, Dr. J. U. Giesy, and Dr. M. M. Critchlow.

Doctor Critchlow reported that the only subject of importance to be brought before the committee was the broadcasting of medical subjects over the radio. KDYL had offered us time twice a week. After discussion of this matter Dr. J. U. Giesy kindly consented to take over the responsibility of this work and was asked to call in any members of the Association he would need to assist him, and to call for papers from all members of the Association on subjects he would think advisable, and also to obtain what material he was able to get from the American Medical Association.

Medical subjects were broadcast over KDYL twice a week from March until June, and over KSL from July until the present time, all under the direction of Dr. J. U. Giesy, Dr. M. M. Critchlow, and Dr. O. J. LaBarge.

This work has taken up a very great deal of time, and while the members of the profession have re-



sponded very well these papers needed to be edited and delivered, and too much credit cannot be given to Dr. J. U. Giesy, Dr. M. M. Critchlow, and Dr. O. J. LaBarge for their efforts in this work.

\* \* \*

### Report of Delegate to the American Medical Association

By EDWARD D. LECOMPTE, M. D.

The American Medical Association returned this year, after an absence of thirty-three years, to Philadelphia, the city of its birth, where the first annual meeting was held in 1847. Philadelphia also gave to the Association its first president, Dr. Nathaniel Chapman. Yet in spite of this and Philadelphia's pre-eminence as one of the nation's medical centers, she has not been hostess to the Association since 1897. The reason, perhaps, lies in the fact that the city has been without a suitable building to accommodate the convention until the completion last June of the new Municipal Auditorium on Thirty-fourth Street, near the University of Pennsylvania. This splendid edifice was formally opened with the eighty-second annual meeting of the American Medical Association on the eighth of June. It is one of the few civic auditoriums in the country large enough to house the convention under one roof. The convention, which was one of the largest in point of attendance, with a registration of 7006, in the history of the Association, was adequately provided for in every way.

The technical exhibition, which is an outgrowth of the old commercial exhibit of a quarter of a century ago, occupied the main auditorium floor. This year it embraced practically the entire range of material things needed in the practice of medicine and has become more and more of an informative and educational nature. More than 180 firms exhibited.

What in recent years has come to be one of the most interesting features of the annual convention to the medical man is the scientific exhibit, which this year occupied an even greater floor area beneath the technical exhibition. Spectacular displays of every variety of pathology, demonstrations of bacteriology and histology, innumerable specimens of great interest to the medical man, and continuous moving pictures of operative procedures and technique make a large call on one's time at the convention.

The scientific session, in its various sections, offered more than three hundred papers on nearly every phase of medicine. It was proposed to have clinical programs in the place of some of these.

In the House of Delegates, under the speakership of its very capable and expeditious Dr. F. C. Warnshuis, some very interesting reports of the secretary and of the board of trustees and of the councils were presented.

The secretary reported that the Association now has more than 100,000 members of the 155,000 licensed physicians in the United States. Of this number about 65,000 are Fellows. The number of these had decreased somewhat during the year as a result of the depression.

In the addresses of the outgoing president of the Association, Dr. William Gerry Morgan of Washington, D. C., and of the new president, Dr. E. Starr Judd, much was said in regard to new headquarters to house the growing needs of the Association. It seems that the present headquarters at 535 North Dearborn Street in Chicago are fast being outgrown and that a building fund has already been started to soon erect new and adequate buildings either on the present site or elsewhere in Chicago, and some argument has been offered to move the headquarters to Washington, D. C. Doctor Morgan of that city said that while he had weighed the matter carefully he believed that the geographical center of the country still offered the better place, as it always had, but he deemed it highly advisable that the permanent office of the chief officer of the Bureau of Legal Medicine, Dr. William C. Woodward, should be in Washington, at least during the periods when our national legislature is in session.

President Judd spoke of the immediate need of a new headquarters building and of some added features like a great medical museum and a central scientific exhibit to be a permanent part for the use of the medical profession.

Doctor Judd observed that "those who attended the meetings of the White House Conference must have been impressed with the fact that so few physicians were present. While the profession welcomes coöperation from the outside organizations, nevertheless it is of interest to society and of importance to medicine for us to retain our position in these affairs."

"The Bureau of Medical Economics," he said, "is just being organized and ultimately will have all available information regarding the cost of medical care. So much misinformation regarding economics is being broadcast that it is certainly our obligation and responsibility to set this aright. This means a great deal of study and work, and is a task for those who have had much experience in these activities. There are few actual practitioners of medicine on the five-year committee on the cost of medical care. The statistical work of the committee has been tremendous, and a great deal of information will be available. It seems to me that a Bureau made up of men from the Association would be better able to put the proper interpretation on the findings of this committee than would those in government and public health work alone. This bureau must have the best man power that can be obtained.

Doctor Judd made a plea for the establishment in each state of a committee on legislation as a part of the State Association as many states have and that methods be devised whereby these state committees may be kept in close contact with the Bureau of Legal Medicine and Legislation, to the end that both national and state medical legislation may be better looked after.

A new apportionment of delegates was made this year and every third year since 1925. With one delegate to every eight hundred members or fraction thereof, California and New York each gained a delegate, and Kansas, Maine, and Pennsylvania each lost one.

Legislation enacted by the House of Delegates included in the adoption of resolutions offered by the delegates the following:

A resolution was adopted calling upon Congress to abandon the policy of rendering medical and hospital benefits to veterans of the World War with non-service connected disabilities, and to substitute therefor a plan of disability insurance benefits with the following provisions:

First: The creation of a Bureau of Disability insurance in the Veterans' Bureau as now constituted.

Second: The issuance of a disability insurance policy to each veteran with a disability benefit clause as follows:

(a) The payment of a weekly cash benefit during a period of total disability; and

(b) The payment of liberal hospital benefit sufficient to cover the hospital expenses of a veteran during a period of hospitalization for any disability; and

(c) Such other provisions as are necessary for the proper administration of the act.

It was further resolved that each state medical association be requested to form a committee whose duty it will be to approach the state and local Legion Posts throughout the country with a view to securing the adoption of this program by them.

It was felt that the government policy of building hospitals placed it in unnecessary and unjust competition with the civilian hospitals and the medical profession of the United States.

(See action of House of Delegates on this item as given in the preceding minutes.)

Dr. Ray Lyman Wilbur, Chairman, presented the report of the Council on Medical Education and Hospitals, which brought out some facts of interest and suggestions as follows:

The demand of hospitals for interns exceeds the annual number of graduates by about one thousand,



and it is getting increasingly harder for the non-accredited hospitals to get graduates to serve as interns.

It was resolved that acceptable medical colleges should assist all of their students in obtaining intern training, and that after the academic year 1933-1934 all acceptable colleges complete arrangements so that each annual announcement will contain a record of the hospital training of the graduating class of the year before.

It was resolved, too, that the Council on Medical Education and Hospitals pursue to its logical conclusion the investigations begun in regard to "repeaters" among medical students, to the end that unqualified students may not be graduated and commercially tainted medical schools may thereby be disorganized.

There is some fear that the Surgeon General's Library in Washington will soon be moved to a new location near the Walter Reed Hospital, some five or six miles from its present site. Those who have the matter in charge will be asked to place it in a building near the Congressional Library.

"It has been brought to the attention of the Judicial Council that some hospitals have adopted rules whereby attending staff physicians are prohibited, under certain conditions, from accepting fees for professional services, though charges for such services are made and fees are collected and appropriated to their own use by these hospitals. In one instance, members of a hospital staff were prohibited from the collection of fees for services rendered to certain ward patients who were required to pay for hospital accommodations and to pay for service rendered by members of its staff, the hospital retaining all money collected for its own use. Inquiries received indicate a tendency on the part of some hospitals to adopt rules providing for the collection of all fees by hospital officials and payment by them to attending physicians for their professional services to patients. The Judicial Council, on request, in one case gave its opinion to the effect that such procedure on the part of a hospital was unethical." This ruling was adopted by the House of Delegates.

Another proposal read as follows: "We especially condemn the examination of preschool children en masse in clinics, health units, and similar agencies. Such examinations cannot be but perfunctory, superficial, and unsatisfactory to physician and child alike."

To nullify the effects of the oft-recurring efforts of some local body or organization of physicians to speak for the whole body of medical men, it was pointed out that the American Medical Association is the largest body of physicians in the United States, representing every specialty, democratically organized, and including more than one hundred thousand physicians, is the one body, in organized medicine, entitled to speak for the vast majority of the physicians of this country.

The following resolution was introduced and referred to the newly created Bureau of Medical Economics:

Whereas, The rights and privileges of the individual physicians of the entire United States are involved and are being encroached on by the health and accident insurance companies, which are continuing to insist that the services of the physician in filling out claim proofs are part of the physician's obligation to his patient; that the insurance companies are unwilling to concede that the information given to them is for their own statistical use in properly adjusting claims and that they are unwilling to pay the physician for his fee; therefore, be it

Resolved, That the House of Delegates of the American Medical Association concur with and approve the action of the Michigan State Medical Society in adopting resolutions providing for the charging of a fee of not less than \$2 for each preliminary and final claim proof; and that the House of Delegates of the American Medical Association authorize its speaker to appoint a committee to whom this problem shall be referred.

Chicago made a bid for the 1933 meeting. This will be the year of her Century of Progress Exposition and World Fair. Cleveland also sent an invitation for that year.

Next April the annual meeting will be held in New Orleans. (Editor's Note.—The Board of Trustees of the American Medical Association has since then designated May 9-12 as the meeting days.)

Dr. E. H. Cary of Dallas, Texas, was made president-elect.

## COMPONENT COUNTY SOCIETIES

### BOXELDER COUNTY

The first meeting of the Boxelder County Medical Society since the summer vacation was held at Garland on September 24.

After the meeting a good supper was had at the Garland Hotel. General business methods for the doctors were discussed. Doctor Pearse submitted his resignation as secretary, owing to the many new duties connected with the state presidency for the coming year. Inasmuch as our president, Doctor Mahannah of Brigham has moved to California and the vice-president, Doctor Wardleigh of Snowville is away taking postgraduate work, it was decided to have our general election at the next meeting in Brigham on October 15. Doctors White, Merrell, Pearse, Betensen, and Weymuller were present.

Just before sending in this report I learned of the sudden death of our fellow member, Dr. Odeen Luke of Tremonton, due to an automobile accident. Doctor Luke was a graduate of the University of Pennsylvania, the class of 1921. He was a native son of Utah. We in the profession loved him. Among the people he was known far and wide as a doctor, a social and political leader, and a man's man.

R. A. PEARSE, *Secretary*.

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### SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held on Monday evening, September 28, at the Salt Lake General Hospital. Fifty-five members and five visitors were present.

The meeting was called to order at 8:05 o'clock by President F. M. McHugh.

The minutes of the meeting of June 8 and August 31 were read and accepted without correction.

Dr. Alva G. Thomas was elected to membership.

The applications of Dr. J. Z. Brown, Jr., and Dr. F. R. Belokossy were read and turned over to the Board of Censors.

The society then went into executive session, and Dr. L. E. Viko reported for the Committee on Medical Charity Service. His report advocated the changing of the by-laws so that the annual dues for active members should be raised to \$25 a year. Associate members and those residing outside of the state are excepted. Dr. H. S. Scott moved that the report be accepted. This motion was seconded. Dr. G. Richards moved that this motion be laid on the table. Motion seconded and lost. The question was discussed by Doctors A. C. Callister, H. S. Scott, E. P. Oldham, D. L. Barnard, J. P. Kerby, E. M. Neher, L. C. Snow, Sol Kahn, J. R. Llewellyn, A. N. Leonard, W. F. Beer, W. T. Ward, and J. Z. Brown. The motion to accept the report was passed.

The clinical program presented the following topics: Ventral Hernia; Abscess of Lung; Obstructive Jaundice; Chronic Myelogenous Leukemia.

The meeting adjourned at 9:50 o'clock, after which refreshments were served.

\* \* \*

The regular meeting of the Salt Lake County Medical Society was held at the Newhouse Hotel on Monday evening, October 12, at eight o'clock. One hundred and four members and one visitor were present.

The meeting was called to order at eight o'clock by President F. M. McHugh.



The minutes of the meeting of September 28 were read and accepted without correction.

The program was as follows: "European Clinics," by C. L. Shields; "Tularemia," by J. W. Sugden; "Future Plans of the State Training School," by B. W. Whitten (by invitation).

These papers were discussed by Dr. S. H. Scott and Dr. S. C. Baldwin.

The application of Dr. W. R. Middlemiss was read and turned over to the Board of Censors.

Dr. John Z. Brown, Jr., was elected to membership.

The question of changing the by-laws in order to create funds to be used by the Medical Service Bureau was then discussed by Doctors S. Stauffer, L. C. Snow, G. Richards, V. White, and H. S. Scott. Dr. L. E. Viko made an additional report for the Medical Service Bureau in which he said that he had received a letter from the County Commissioners endorsing the recommendation of this committee in their request for an additional social service worker. The letter also asked for a meeting with the committee to discuss the formation of a board of governors for the Salt Lake County General Hospital. Dr. W. F. Beer moved that the vote upon the amendments to the by-laws be made by secret ballot. This motion was seconded and carried. The amendments to the by-laws were lost by a score of 14 to 90. Dr. E. P. Oldham then moved that the society go on record as endorsing the work of the Committee on Medical Charity Service. Motion seconded and carried.

R. J. Alexander discussed for a few moments the abuse of charity by patients in the Salt Lake General Hospital.

BARNET E. BONAR, *Secretary*.

#### Deaths

**Benedict, Chauncey Mott.** Died August 29, 1931, age 56 years. Doctor Benedict was a graduate of Cornell University Medical College, New York, 1899; licensed the same year. Doctor Benedict was a member of the Salt Lake County Medical Society, the Utah State Medical Association, and the American Medical Association.

**Luke, Odeen.** Killed in an automobile accident October 9, 1931, age 42 years. Doctor Luke was a graduate of the University School of Medicine, Philadelphia, 1921. Licensed to practice, 1922. Doctor Luke was a member of the Boxelder County Medical Society, the Utah State Medical Association, and the American Medical Association.

*The First Thanksgiving Proclamation.*—Few Americans know that the original Presidential Thanksgiving Proclamation was lost for over a hundred years; that it was found at an auction sale in 1921; that it was bought by the Library of Congress for \$300; and that it now reposes in the archives of that institution—one of the most valuable documents in the world. The Division of Information and Publication of the George Washington Bicentennial Commission related the story in the House of Representatives:

"Resolved, That a joint committee of both Houses be directed to wait upon the President of the United States to request that he would recommend to the people of the United States a day of public thanksgiving and prayer, to be observed by acknowledging, with grateful hearts, the many signal favors of Almighty God, especially by affording them an opportunity to establish a constitution of government for their safety and happiness."

Harmless as this resolution seems, there were objections to it. In reading the Annals of Congress of that period, we find that Representative Aedanus Burke of South Carolina thought "we should not mimic Europe, where they made a mere mockery of thanksgiving."

Representative Thomas Tudor Tucker, also of South Carolina, argued that it was not the business of Congress to ask for a national day of Thanksgiving.

"They (the people) may not be inclined to return thanks for a Constitution until they have experienced that it promotes their safety and happiness."

These objections, however, were overruled; the resolution was passed and sent to the Senate for concurrence. The Senate approved and appointed its committee to wait on the President. The joint committee was made up of Ralph Izard of South Carolina and William S. Johnson of Connecticut, from the Senate; Elias Boudinot of New Jersey, Roger Sherman of Connecticut, and Peter Sylvester of New York, from the House.

Washington complied with the request and on October 3, 1789, issued his proclamation, calling for a national day of thanksgiving on Thursday, November 26.

And then the document dropped out of sight. It apparently was misplaced or attached to some private papers in the process of moving official records from one city to another when the Capital was changed. However, it happened, the original manuscript was not in the official archives until 1921, when Dr. J. C. Fitzpatrick, then assistant chief of the Manuscripts Division of the Library of Congress, and now editor of the forthcoming George Washington Bicentennial Commission series of Washington's Writings, "found" the proclamation. It was at an auction sale being held in the American Art Galleries of New York City. Doctor Fitzpatrick, an expert in Washingtonia, examined the document and found it to be authentic. It was written in long hand by William Jackson, secretary to President Washington at the time, and was signed in George Washington's bold hand. Doctor Fitzpatrick purchased the document for \$300 for the Library of Congress, where it is now kept as a treasure. And no amount of money could remove it.

The original Proclamation of Thanksgiving, and, indeed, the first presidential proclamation ever issued in the United States, reads as follows:

"By the President of the United States of America.

"Whereas it is the duty of all nations to acknowledge the providence of Almighty God, to obey his will, to be grateful for his benefits, and humbly to implore his protection and favor—and Whereas both Houses of Congress have by their joint committee requested me 'to recommend to the People of the United States a day of public thanksgiving and prayer, to be observed by acknowledging with grateful hearts the many signal favors of Almighty God, especially by affording them an opportunity to establish a form of government for their safety and happiness.'

"Now, therefore, I do recommend and assign Thursday, the 26th day of November next, to be devoted by the People of these States to the service of that great and glorious Being who is the beneficent Author of all the good that was, that is, or that will be—That we may then all unite in rendering unto him our sincere and humble thanks—for his kind care and protection of the People of this country previous to their becoming a Nation—for the signal and manifold mercies and the favorable interpositions of his providence, which we experienced in the course and conclusion of the late war—for the great degree of tranquillity, union, and plenty, which we have since enjoyed—for the peaceable and rational manner in which we have been enabled to establish constitutions of government for our safety and happiness, and particularly the national One now lately instituted—for the civil and religious liberty with which we are blessed and the means we have of acquiring and diffusing useful knowledge; and in general for all the great and various favors which he hath been pleased to confer upon us.

"And also that we may then unite in most humbly offering our prayers and supplications to the great Lord and Ruler of Nations, and beseech him to pardon our national and other transgressions—to enable us all, whether in public or private stations, to perform our several and relative duties properly and punctually—to render our national government a blessing to all the People by constantly being a Government of wise, just, and constitutional laws, discreetly and faithfully executed and obeyed—to protect and guide all Sovereigns and Nations (especially such as have shown kindness to us) and to bless them with good Government, peace, and concord. To promote the knowledge and practice of true religion and virtue, and the increase of science among them and us—and generally to grant unto all mankind such a degree of temporal prosperity as he alone knows to be best.

"Given under my hand at the City of New York the third day of October in the year of our Lord 1789.

(signed) George Washington."

Celebration of Thanksgiving Day in America can be traced back to the earliest days of the Massachusetts Bay Colony. From there the custom spread to all parts of the United States.

# MISCELLANY

Under this department are ordinarily grouped: News; Medical Economics; Correspondence; Twenty-five Years Ago column; Department of Public Health; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the twentieth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

## NEWS

**Galen Exhibit at the University of California Medical School Library.**—The exhibition of medical uncunabula ("cradle books," printed before 1500) which has been on display at the University of California Medical School Library, San Francisco, has been removed to make way for an exhibition of material relating to Galen, the great Roman physician and first experimental physiologist. This year marks the eighteenth centenary of Galen's birth.

**University of California Medical School Library.**—Announcement has been made that the University of California Medical School Library will be open Sundays from 10 a. m. to 1 p. m. during the regular school semester, beginning October 4, 1931.

The Medical Library Packet Service, inaugurated by the University of California Medical School Library last year for the purpose of supplying physicians and medical institutions in the state with library service, has grown to such an extent that an average of over one hundred volumes per month have been loaned during the past six months.

**San Diego Academy of Medicine.**—Program for November meeting:

November 12—"The Anatomy and Physiology of the Sympathetic Nervous System, Especially in Relation to Its Clinical Aspect"—Dr. Albert Kuntz, professor of anatomy, St. Louis University.

November 13—"Diagnosis and Treatment of Intracranial Hemorrhage in the New-Born"—Dr. Clifford Grulee, professor of pediatrics, Rush Medical College.

**Postgraduate Symposium on Heart Disease.**—Encouraged by the widespread interest manifested in last year's heart clinics, the Heart Committee of the San Francisco County Medical Society and of the San Francisco Tuberculosis Association has decided to hold another clinical symposium on heart disease this autumn. In order to conserve the time of physicians from out of town, this symposium will be concentrated in one day—morning, afternoon, and evening of Thursday, November 19, 1931. The morning and afternoon sessions will be held at the San Francisco Hospital, the evening session at the San Francisco County Medical Society auditorium. All physicians will be welcome. Program will be mailed on request.

**Coming Meetings.**—American Society of Tropical Medicine, New Orleans, November 18-20. Benjamin Schwartz, M. D., P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30 to December 2. J. R. Kean, M. D., Army Medical Museum, Washington, D. C., Secretary.

Radiological Society of North America, St. Louis, November 30 to December 4. I. S. Trostler, M. D., 25 East Washington Street, Chicago, Secretary.

Southern California Medical Association, Hotel Roosevelt, Hollywood, November 13-14. Carl R. Howson, M. D., 711 Merritt Building, Los Angeles, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loran, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, December 8-11. Robert L. Payne, M. D., 142 York Street, Norfolk, Virginia, Secretary.

**Southern California Medical Society.**—The eighty-fifth semi-annual meeting of the Southern California Medical Society will be held on Friday and Saturday, November 13 and 14, 1931, at the Hotel Roosevelt, Hollywood, Los Angeles.

This year's officers of the society are: Fred B. Clarke, Long Beach, president; William H. Barrow, San Diego, first vice-president; Philip Stephens, Los Angeles, second vice-president; Carl R. Howson, Los Angeles, secretary-treasurer.

### Scientific Program

#### FRIDAY, 11 A. M.

1. A New Method of Treating Burns—Ralph T. Richards, M. D., Salt Lake City, Utah.

#### FRIDAY, 2 P. M.

1. Subtotal Gastric Resection—Eric E. Larson, M. D., Los Angeles.
2. The Gross and Cellular Response of the Pleura to Foreign Material and the Process of Its Elimination Through Lymphatic Tracts—Willis S. Lemon, M. D., Associate Professor of Medicine, University of Minnesota, Rochester, Minnesota.
3. Rabies (including a motion picture showing a case of human rabies)—Karl F. Meyer, M. D., Director, the George Williams Hooper Foundation for Medical Research, University of California, San Francisco.

#### FRIDAY, 6:30 P. M.

##### Dinner

##### Hotel Roosevelt

1. Talking Motion Picture: "The Thyroid"—George W. Crile, M. D., Cleveland, Ohio.
2. Prolapse of the Uterus—P. E. Truesdale, M. D., Fall River, Massachusetts.

#### SATURDAY, 9:30 A. M.

1. The Use of the Patch Test in the Diagnosis of Contact Dermatitis. (Due to external irritants such as plants, chemicals, cosmetics, etc.)—Samuel Ayres, Jr., M. D., Los Angeles and Nelson P. Anderson, M. D., Los Angeles.
2. The Care and Feeding of Premature Infants—Clifford G. Grulee, M. D., Professor of Pediatrics, University of Illinois.
3. The Relationship of the Autonomic Nervous System to Various Clinical Problems—Albert Kuntz, M. D., Professor of Microscopic Anatomy, St. Louis University School of Medicine.

#### SATURDAY, 2 P. M.

1. Medical Economics—Daniel Crosby, M. D., Oakland.
2. Primary Malignancies of the Lung. (Clinical Report of Experiences at Mayo Clinic.)—Willis S. Lemon, M. D., Associate Professor of Medicine, University of Minnesota.
3. Some of the Causes of Failure in the Treatment of Cancer—R. G. Taylor, M. D., Los Angeles.



## CORRESPONDENCE

**Subject of Following Letter: Comments on Article on Syphilis, by Dr. James E. Potter, Printed in August California and Western Medicine**

*To the Editor:*—In the August 1931 issue of CALIFORNIA AND WESTERN MEDICINE (page 97) Dr. James E. Potter published an interesting article entitled "Syphilis—The Treatment of Wassermann-Fast and Cerebrospinal by Modern Methods." In that article Doctor Potter advocated the intravenous use of a bismuth product. To the undersigned's viewpoint, such a method of administering bismuth is not in keeping with current practice and is possibly, I believe, a dangerous one.

At least five deaths have been reported as having immediately followed the intravenous use of bismuth compounds. One of these, reported by Curtis,<sup>1</sup> occurred immediately after the injection of the same product (Loeser) as was used by Doctor Potter. In discussing this case<sup>2</sup> one of our leading chemotherapists stated, "I have always been opposed to the employment of bismuth products intravenously, owing to their high toxicity by this route." Following this same article the editor of *The Journal of the American Medical Association* remarks that the Council on Pharmacy and Chemistry and *The Journal of the American Medical Association* had warned against intravenous bismuth therapy.

Magnus<sup>3</sup> reported a sudden death following an intravenous injection of bismuth ammonium citrate. Likewise, Duchateau and Verstraten<sup>4</sup> reported two deaths immediately after the intravenous injection of an aqueous solution of tartrobismuthate. Fraenckel<sup>5</sup> added another fatality attributable to intravenous bismuth therapy.

In a very exhaustive study, "Intravenous Injections of Bismuth Compounds in the Treatment of Syphilis," Klauder<sup>6</sup> found that in the experimental animal the therapeutic dose closely approached the maximal tolerated dose. In other words, when given intravenously the bismuth compounds had a very low therapeutic index. Although he found that bismuth given intravenously was of value in human syphilis he was quite cautious in recommending this method of administration. He says: "Considering the greater toxicity of the drug when administered intravenously, which necessitated limitation of dosage, and its rapid excretion, it is doubtful whether the intravenous route is more effective in the therapy of syphilis than the intramuscular route."

In view of the above findings of high toxicity for the intravenous bismuth products, one would feel inclined to stick to the older, safer and extremely valuable intramuscular bismuth products; at least until some Ehrlich synthesizes a new compound of bismuth which when given intravenously will be of low toxicity and high therapeutic value. References enclosed.\*

H. J. TEMPLETON, M. D., Oakland.

## \* REFERENCES

1. Curtis, Stephen H.: Sudden Death Following the Intravenous Injection of Bismuth Tartrate, *J. A. M. A.*, 95:1588, No. 21 (Nov. 22), 1930.
2. Raiziss, George W.: Sudden Death After Intravenous Use of Bismuth Tartrate, *J. A. M. A.*, 96:211, No. 3 (Jan. 17), 1931.
3. Magnus: Plotzlichen Todesfallnach Intravenosen Wis-muteinspritzung, *Klin. Wchnschr.*, 3:1275, 1924.
4. Duchateau, M., and Verstraten, P.: Les Injections Intraveineuses de Bismuth dans la Paralysie Generale, *J. de Neurol. et Psych.*, 9:567, 1925.
5. Fraenckel, P.: Two Cases of Sudden Death Following Intravenous Bismuth Injection, *Deutsche Ztschr. f. d. ges. gerichtl. Med.*, 5:5, 1925.
6. Klauder, J. V.: Intravenous Injections of Bismuth Compounds in the Treatment of Syphilis, *Arch. Derm. and Syph.*, 17:332.

*Reply of Dr. James E. Potter*

United States Submarine Base  
Coco Solo, Canal Zone

October 20, 1931.

*To the Editor:*

1. The criticism of my article by Doctor Templeton insofar as it applies to the routine use of intravenous bismuth is both interesting and constructive.

2. However, it appears to put me in the position of advocating the use of intravenous injections of a bismuth compound as a routine measure in the treatment of syphilis. I desire to correct this impression by emphasizing the fact that I do not advocate such use as a routine measure, but would reserve it as a means of final resort in the type of cases to which I refer in my article. Every one of the ninety-three cases reported was unusual and ordinary medication had failed to control the disease.

3. One must naturally decide between watching one's patient deteriorate from the ravages of the disease and the use of other modalities in the hope of controlling it, even though some danger may be entailed by the employment of a more drastic medication.

4. In view of the gravity of the cases reported, I feel that the exposure of the patients to the extra hazard of the drugs used was indicated.

5. The dangers following the use of intravenous bismuth are clearly outlined in the article.

6. Many deleterious effects have been reported as following the use of neoarsphenamin, yet when used in properly selected cases it is recognized as an excellent routine measure.

7. Since submitting my article for publication, additional patients treated bring the total of my series to one hundred and fifty-one. No deaths or severe reactions have followed its administration.

8. Hence in view of the foregoing and in properly selected cases, where the rapid absorption of bismuth is indicated, I must conclude that the treatment as outlined in my article is productive of more satisfactory results than the older methods.

JAMES E. POTTER, M. D.,  
Lieutenant-Commander, (M. C.), U. S. Navy.

\* \* \*

**Subject of Following Letter: The Importance of Doctor Reed's Article on the Need of a California Institute on Tropical Medicine †**

*To the Editor:*—A splendid article by Dr. Alfred C. Reed on Tropical Medicine was printed in CALIFORNIA AND WESTERN MEDICINE, September 1931, p. 185.

While appreciating the discussions given Doctor Reed's article, it seemed to me to be worthy of a special consideration. There are no cities in the United States more exposed to the dangers to health and commerce by the entrance of tropical diseases than are San Francisco and Los Angeles. We are apt to think only in terms of yellow fever and Asiatic cholera, while many more important and subtle infestations are gaining hold in this part of the country to spread to other localities.

Every intestinal parasite and the horde of spirochaeta and other tropical body-borne diseases are brought in at each one of these ports daily. We are thus far fortunate that our California snails, ticks, cockroaches, flies, rats and mice, ants and parrots, are no more infested than they are. Noguchi has shown the ease of transmission and the danger to health of flagellates on plants.

Many of the fruits, vegetables, finished fabrics, farm materials and factory supplies need careful scrutiny and supervision as a health protective measure, and the safety of commerce itself. All of these products should be so safeguarded that they will not be incriminated as disease carriers. Commercial enterprises such as the growing of hemp, the manufac-

† See editorial comment in this number of California and Western Medicine, page 382.

ture of sugar, the production of rubber, may at any time suffer enormously from the lack of the proper exercise of known health prevention in the protection of these industries. The proper safeguarding against the invasion of scale, boll weevil, or termites may save millions of dollars. The greatest source of scientific knowledge in this field is found in tropical medicine. Air transportation has added another enormously vital precaution to public health institutions.

I think this question is certainly vital enough to be a matter of consideration for the California Medical Association Council and also of a place on the program of the State Association during this coming year.

JOHN V. BARROW, Los Angeles.

CALIFORNIA MEDICAL  
HISTORY

CALIFORNIA MEDICAL ASSOCIATION  
CLINICAL AND RESEARCH  
PRIZES

Members of the California Medical Association from time to time have had their attention called to the two prizes for one hundred and fifty dollars each, which since the year 1926 have been offered by the Association for the two best papers presented at each annual session in the clinical and research prize competitions. In this issue of CALIFORNIA AND WESTERN MEDICINE the revised rules for entrants for these prizes are commented upon. (See editorial comment on page 380, and official notices on page 386.)

As a matter of historical record and as showing the nature of the subjects which, from the time the prizes were instituted at the annual session of 1926, have been awarded prizes or honorable mention, the following listing for the information of members is here inserted:

STATE MEDICINE

Copies of some interesting correspondence dealing with the subject of "State Medicine," with special reference to the system in vogue in Great Britain, were printed in the September 17, 1931 number of the *New England Journal of Medicine*. The excerpts given below were from a letter written by Alfred Cox, medical secretary of the British Medical Association:

"I have never failed to impress upon American visitors my feeling that some extension of state medicine is bound to come in the United States and that the present depression will hasten it. Moreover, I am more strongly than ever of the opinion that it is up to the medical profession to furnish concrete ideas as to how this service should be given and not to wait until the politicians make a scheme of their own and force it on the profession. Our experience in England showed that the work we did on contract practice before the Insurance Act was introduced was invaluable, because it focused our ideas and made us more able than we should otherwise have been to put up a fight when the politicians came along with a scheme which we felt would be intolerable if put into action.

"Now as regards Doctor Dameshek's statements: I do not know that I have much to add to what I said in my papers in 1923. Our system on the whole has stood the test pretty well, except for one thing which is common to all systems of state medicine that I know of. The provision of cash benefits on an insurance basis, combined with the provision of medical attendance, seems always to lead to a lowering of the morale of the persons insured, or at any rate a tendency to get sick more easily. When I was a Club doctor in an industrial area it was a common experience to find that members of the Club, realizing that it was a mutual insurance affair, were generally most anxious not to make a claim on the funds if they could help it; but one sees no such reluctance now. The action of our Government and other Governments in giving considerable subsidies to people out of work has made them less self-reliant and more inclined to look for sources of easy income, and in this softening of the morale the medical profession has not been left untouched. It takes a strong man to resist an appeal for a certificate from a person who cannot be said to be malingering but who, the doctor feels, might, if he would muster up a little resolution, go on working with benefit to himself. And so you have the painful problem of a steady increase in the demands for the cash benefits which can only be secured on the production of a medical certificate. This is the problem which is worrying us most now and which we are doing our best to solve by instituting disciplinary procedure against men who are

List of Clinical and Research Prize Papers—California Medical Association

| Year Given | Name of Author                  | City          | Topic                                                                                      | Clinical, Research or Honorable mention |
|------------|---------------------------------|---------------|--------------------------------------------------------------------------------------------|-----------------------------------------|
| 1926       | E. Bogen                        | Los Angeles   | Arachnidism—A Study of Spider Poisoning                                                    | Clinical prize                          |
| 1926       | A. H. Rowe and H. Rogers        | Oakland       | A Study of Carbohydrate Tolerance in Normal and Nondiabetics                               | Honorable mention (Research prize)      |
| 1927       | E. Bogen                        | Los Angeles   | Diagnosis of Drunkenness                                                                   | Research prize                          |
| 1928       | W. H. Leake                     | Los Angeles   | An Electrocardiographic Study of the Effect of Emetin on the Rabbit's Heart                | Research prize                          |
| 1928       | C. B. Courville                 | Loma Linda    | A Study in the Pathological Physiology of Intracranial Neoplasms                           | Clinical prize                          |
| 1929       | .....                           | .....         | (No awards given)                                                                          | .....                                   |
| 1930       | E. Bogen                        | Los Angeles   | Pulmonary Hemorrhage                                                                       | Clinical prize                          |
| 1930       | H. J. Hara                      | Los Angeles   | Comparative Merits of Posture and Other Factors in Relation to Aspiration in Tonsillectomy | Research prize                          |
| 1930       | Mary Neff                       | Los Angeles   | The Radicular Syndrome Following Infection with Tetanus                                    | Honorable mention (Clinical prize)      |
| 1930       | T. L. Althausen                 | San Francisco | Functional Aspects of Regenerated Hepatic Tissue                                           | Honorable mention (Research prize)      |
| 1931       | Eleanor Seymour                 | Los Angeles   | Incidental Head Surgery—Its Effects on the Course of Pulmonary Tuberculosis                | Clinical prize                          |
| 1931       | Esther Somerfeld and E. Ziskind | Los Angeles   | Meningeal Allergy in Tuberculosis                                                          | Research prize                          |
| 1931       | S. Hanson                       | Stockton      | The Narrow Bispinous Diameter                                                              | Honorable mention (Clinical prize)      |



proved to be slack in this matter of certification. The machinery has not come into operation yet, but it will do so shortly and one hopes that the very fact of its existence will be a warning to that minority who give certificates too easily.

"Of course, the out-and-out supporter of state medicine will say that if the doctor were on a salary and had no direct obligation to the patient he would not be so easy about giving certificates, but this I doubt. And even if such a system did succeed in making the doctor more strict as regards his certificates it would, in my opinion, tend to make him less of a human being dealing with human beings and more of an official dealing with people in the mass, a position which I, as a potential patient, cannot contemplate for a moment with equanimity.

"I still think the ideal method of getting medical attendance is to choose your doctor for yourself and pay him out of your own pocket, getting rid of him if he is not satisfactory. But experience all the world over shows that this ideal cannot be realized and on the whole I think the insurance system, where the insured person has to pay regularly out of his wages and knows he is paying; where he is allowed to choose his doctor from the list of the men willing to serve; and where the doctor is left free to do private practice among those who prefer to pay by the old method, is the best compromise we can get. I am as firmly opposed as ever I was to a complete state service. No doctor, it seems to me, can be a good doctor unless he is an individualist, and as a patient I do not want to be regarded as a member of a regiment, to be made fit to work as quickly as possible and with no waste of sympathy when I am ill. We have a complete state system in the Army, and men who have been there will tell you that it is all very good when you are really ill and require hospital treatment, but if you are suffering from something smaller which needs humane handling and a little human sympathy, you are not likely to get it because you are not regarded as an individual patient who has gone to the doctor he thinks is the best man for him, but as part of a crowd. . . .

"In some of the continental systems the politician has, of course, made life almost unendurable for the doctors. In Austria, at one time, when the socialists were in power, I am told that the Roman Catholic doctors were deprived of their insurance work; and when the Catholics came into power the socialist doctors were turned out. Heaven help us when the provision of medical attendance, a thing of such particular personal import to every individual, becomes the plaything of the politician. . . .

"I say nothing about Doctor Dameshek's examination of the position in Germany. I know the system there is very bad and the doctors very discontented. But the German system has never been so good as ours; inasmuch as it has been far more the plaything of the politician than ours has been, and the organized profession has had much less to do with the administration of the medical part of the system. . . .

"As the secretary of a medical organization with a great experience in these matters, I would with all my force urge similar medical organizations throughout the world not to shut their eyes to the developments that are going on and not to leave the politician to find the answer to the problem 'how are we to insure that our working population can get the medical attendance it deserves on terms which it can afford, and in a way which a self-respecting citizen, not desiring charity, can accept.'"

## TWENTY-FIVE YEARS AGO\*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume IV, No. 11, November 1906

#### From some editorial notes:

*Four Years of Life.*—In this present month of November, just four years ago, the first number of the *California State Journal of Medicine*, your own journal, made its appearance. We ask you to go back, in your mind, these four years and recall what they have meant to all of us. The starting of the *Journal* was entirely an experiment. The State Society had just reorganized, after much discussion and not little difficulty, and the plan of basing membership upon, and having it carried with, membership in a county society was new and untried. Before reorganization, the State Society had about three hundred members; immediately after the new plan was adopted and for months it had but few more. There were very few county societies in the State and most of those in

\* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

existence were more theoretical than animate. Such was the condition of things when the *Journal* was born. Naturally, it had few friends and a not inconsiderable number of enemies; would it live? Fortunately the friends which it had were not only strong, but loyal, and they fought its fight, and your fight—for it is your *Journal*—nobly and well. Sacrifices were made during those first months of which you have never heard and will never know; but the *Journal* lived and thrived; at first slowly, then more sturdily. . . . Now, after four years, the State Society has a membership, through its affiliated societies, of close upon two thousand physicians, and the *Journal* is established on a sound business basis which not even the catastrophe of last April could destroy, though it demolished the inflammable superstructure. It would seem that, in numbers and in machinery and in means for expression and communication, we have, in the State Society, the fundamental elements for an organization. . . .

*Are We Doing All We Should?*— . . . But is the attitude of our profession toward the people in this State all that it should be—all that we should make it? Does the organization for the formation of which some of our members have worked so hard and so faithfully really amount to what it should by virtue of its numbers and the standing of its individual members? . . .

*Good Advice.*— . . . Two years ago last April, at the meeting of the society for 1904, the then president, in his address, placed before us very clearly some essential truths. Have we remembered them or are they already forgotten?

"For a doctor to neglect personal attention to civic and political problems is selfish and unjustifiable. His educational advantages, his specific knowledge of sanitary requirements, his trained judgment, his self-restraint and poise in responsible situations, his familiarity with the vagaries of human nature, and the respect shown him by his fellow citizens, make him eminently qualified for executive work, and even leadership in civic affairs. The man of education, brains, and capability owes a certain part of his day to the community in which he lives, and to the associations with which his personal success and happiness are due. If he does not give it he is not doing his full duty to mankind. The greater the advantages he possesses the greater the call to serve his fellow man. Few men, as a class, have a greater personal capacity than physicians. Therefore, few owe more to the State."

Are we paying this, our debt to the commonwealth in which we live and in which we find "our personal success and happiness," honestly and fully and conscientiously? . . .

*Some of Our Duties.*— . . . We do not have to search for civic and professional duties to perform, nor for ways in which the potential strength which is in us should be brought out and directed. The people need guiding, educating, protecting; and it is through our societies and the individual members of them that this strength of our profession should be made manifest. . . .

*Board of Examiners.*— . . . A member of the Board of Medical Examiners in report to the society last April called attention to this subject in a most direct and forceful manner, and we bespeak your attention to his words, to be found elsewhere in this number. Certain amendments to our present law are required; can we venture to ask the legislature for them without the fear that, the door once opened for amendments, we can keep out any extraneous and undesirable ones? . . .

*From an article on "Thorough Organization the Present Need of the Medical Profession" by George H. Aitken, M.D., Fresno.*

The old adage, "In union is strength," was never better exemplified than in the great industrial and



commercial undertakings of the day. Organization and coöperation have become synonymous with progress and reform. . . .

*From an article on "Proprietary Medicines" by A. Jacobi, M. D., LL. D., New York.*

Goethe once said that the most interesting book that could be written would be a treatise on human errors. In that book, large like a library, the history of quackery—well meant or deceitful—would fill a large place. . . .

*From an article on "A Case of Pleural and Pericardial Effusion" by William Watt Kerr, M. A., M. B., San Francisco.*

Your committee on program requested me to read a paper before this society on some topic relating to pleural effusion, but further stipulated that my effusion should not occupy more than the space of fifteen minutes. . . .

## DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M. D.  
Director

**Presidential Address, Health Officers' Section, League of California Municipalities, Monterey, September 21, 1931.**—Public health conditions in California, generally, have been very good since the last meeting of this organization. We met last year in the midst of an extensive outbreak of *acute epidemic poliomyelitis*. Fortunately, this year we are escaping the outbreak of this disease which is sweeping through eastern and middle western states. We have nothing new to present in the control of this disease. Prompt discovery of cases, isolation, complete rest in bed and immediate administration of serum still constitute our most effective weapons in dealing with poliomyelitis. The amount of residual paralysis following last season's outbreak in California was not so extensive as believed at first. Surveys made under the provisions of the so-called Crippled Children's Act have brought to light many cases of paralysis and muscle weakness which have been placed under treatment. This Act is a valuable piece of legislation and you will learn more of its operation at a coming session of this convention. The contrast between 449 cases of epidemic poliomyelitis reported in July of 1930, against twenty-four cases reported in July of 1931, is very great. Next year we may not be so fortunate. It is very important that health officers be alert to discover cases of this disease that may occur during the late winter and spring. Very often an increased prevalence at this season of the year is a forerunner of what is to come in late summer and fall and thorough reporting of cases is particularly valuable in determining an index. The general public justifiably fears this disease—more, perhaps, than any other, and we have certain responsibilities in providing as full and complete information relative to its prevalence and control as may be available.

*Smallpox* has almost disappeared from the state. There were but twenty-eight cases of this disease reported last month, but in January of the present year there were 457 such cases reported. There is nothing new to be said regarding the control of this disease. It is an axiom that smallpox does not become epidemic in a community 50 per cent of whose residents have been successfully vaccinated. Health officers who are fortunate in having sufficient funds to provide equipment and personnel for this work are able to keep their communities free from smallpox epidemics.

Not a single case of *human plague* has occurred in California since September 1928. This provides no excuse for not maintaining a close watch on this disease, however. Infected rodents are discovered with

considerable regularity and sooner or later cases in human beings are liable to occur. I would ask health officers to watch particularly for pneumonia, and especially groups of pneumonia cases that may be suspicious of plague. When this disease appears it is liable to sneak in the back door and whether it appears in its bubonic, pneumonic or septicemic form we must be alert to detect it.

*Epidemic meningitis* has not caused as much trouble as it did two and three years ago, but the status of the disease is such that great vigilance is required in its control. We have been spared, recently, the risk of cases of this disease that might be imported from Oriental ports. There is no doubt, however, that we always have a certain number of carriers of this disease in our midst and there is a possibility that carriers among Filipinos and other Orientals play some rôle in the transmission of the disease among the general population.

*Typhoid fever* remains in a nominal state of control. With a typhoid death rate of less than two per 100,000 population we may well be proud of our record in subduing this disease. When the problems involved in ditch water, irrigation canals, and stream pollution are considered, we may well wonder that we have been able to obtain so low a typhoid death rate. If we were able to solve these problems definitely, it is probably that we might achieve a death rate of less than one per 100,000 population.

*Measles*, during the past year, has ridden on its periodical high wave. In April of this year 7372 cases of the disease were reported in California. It has now dropped to 197 cases reported last month. There have been more than 27,000 cases reported this year, which number is not as high as has occurred in many preceding waves.

*Diphtheria*, during the past year, has been on good behavior. The extension of immunization programs has been a factor in this, but not the only factor. As time goes on we come to the realization that the control of diphtheria is dependent upon many factors and that cases of this disease will occur in spite of our efforts to control it. Treatment, the use of virulence tests and careful supervision of patients are also important factors in the prevention of diphtheria. Immunization is a most valuable procedure, but along with it there must be the continued exercise of old stand-by control measures. No plan for diphtheria control is complete without the employment of a small arsenal of weapons.

*Scarlet fever*, in mild form generally, has been quite prevalent during the past year. The same is true of whooping-cough. It is unfortunate that the mothers of very young children are not better informed relative to the great danger involved in the contraction of whooping-cough. It would seem that educational work in checking whooping-cough among very young children may be one of our greatest opportunities to save infant lives. In 1930, 198 children in California died of whooping-cough, and 185, or 93.4 per cent, of them were under four years of age. Health centers and clinics might well concentrate on the problems presented by this disease which takes so many young lives.

Nine cases of *relapsing fever* have been reported in California this year and five such cases were reported in 1930. All of them occurred in certain mountain counties of both northern and southern California. Sources of infection for some of these cases were in other neighboring states. With the assistance of Dr. K. F. Meyer, consultant to the State Department of Public Health, and Professor W. B. Herms of the University of California, intensive investigations into this disease as it appears in California, have been undertaken. Definite conclusions relative to the vector involved in the transmission of the disease have not been determined, but it is probably one of the *ornithodoros* ticks. This disease was made reportable in California July 11, 1931. Cases occur generally in June, July, and August, but they may appear in September as well as earlier in the season. The State Department of Public Health



and Doctor Meyer would appreciate an immediate report of any cases that may be suspicious of this disease.

**Certification of Laboratories in California.**—Dr. Wilfred H. Kellogg, Chief of the Bureau of Laboratories of the State Department of Public Health, has written an article entitled "The Certification of Laboratories in California" which is printed in the September issue of the *American Journal of Public Health*. The development of the plan for the certification of laboratories in this State has attracted a great deal of attention throughout western states, and it is believed that many other states throughout the country will adopt similar plans within their respective public health organizations.

**Changes of Health Officers.**—Avalon, Los Angeles County, is now under the supervision of the Los Angeles County Health Department. Dr. J. H. Hutton has been appointed health officer of Calipatria to succeed Dr. H. J. Havalick. Willow Glen, Santa Clara County, has come under the supervision of the Santa Clara County Health Department. Dr. Henry S. Rogers succeeds Dr. G. R. Hubbell as health officer of Petaluma.

**Two Children Die of Rabies.**—During the month of May two California children died of rabies, one in Los Angeles and the other in Fresno County. The wounds were not cauterized following the dog bites. The Los Angeles child was bitten April 21. The eyelid was lacerated and there was also a deep laceration on the forehead, but the eyeball was not injured. The antirabic treatment was started April 25, but symptoms developed May 12 and death followed the next day. The dog which bit the child was proven rabid and Negri bodies were demonstrated in the child's brain. The Fresno County child was bitten April 12 on the face. Antirabic treatment was started April 17, but symptoms of the disease developed May 11 and death occurred on the 15th. The dog which bit this child was killed by people in the neighborhood and the head was not submitted for examination.

BOARD OF MEDICAL EXAMINERS  
OF THE STATE OF CALIFORNIA

By CHARLES B. PINKHAM, M. D.  
Secretary  
Results of Board of Medical Examiners' Examination  
San Francisco, July 7-9, 1931

Charles B. Pinkham, M. D., secretary-treasurer of the Board of Medical Examiners of the State of California, reports the results of the written examination held in San Francisco, July 7 to 9 inclusive. The examination covered nine subjects and included ninety questions. An average of 75 per cent is required to pass. An allowance of one per cent added to the general average is permitted by the Medical Practice Act for each year of medical practice, provided the applicant has not received less than 60 per cent in more than one subject. A total of 131 graduates of medical schools wrote the examination, of whom 126 passed and 5 failed. The percentage of failures (3.8 per cent) was the lowest recorded for several years and indicated the high standard of our modern medical schools. The following colleges were represented:

| PASSED                                        |                    |                                                |
|-----------------------------------------------|--------------------|------------------------------------------------|
| College                                       | Year of Graduation | Per Cent                                       |
| College of Medical Evangelists.....           | (1931)             | 87 7/9, 81 8/9                                 |
| Creighton University School of Medicine ..... | (1931)             | 87 6/9, 88 6/9                                 |
|                                               |                    | 80 6/9, 84 5/9, 77 8/9, 79 5/9, 88 4/9, 80 4/9 |

|                                                                |                       |                    |
|----------------------------------------------------------------|-----------------------|--------------------|
| Jefferson Medical College.....                                 | (1930)                | 82 4/9             |
| Loyola University School of Medicine .....                     | (1931)                | 85 5/9             |
| McGill University Faculty of Medicine .....                    | (1930)                | 84, 84 5/9, 87 1/9 |
| Northwestern University Medical School .....                   | (1930)                | 82 8/9, 82 2/9     |
| 86; (1931) 84 3/9, 90 7/9, 82 7/9, 85 2/9, 83 4/9, 87 4/9      |                       |                    |
| Rush Medical College .....                                     | (1921) 79 7/9; (1931) | 86 4/9             |
| Stanford University Medical School.....                        | (1930) 87; (1931)     | 86 3/9             |
| 86 8/9, 90 4/9, 89 1/9, 88, 88 2/9, 88 5/9, 89 7/9, 82 8/9     |                       |                    |
| 85 3/9, 86 5/9, 85 4/9, 86 3/9, 87 5/9, 89 4/9, 84 6/9, 84 6/9 |                       |                    |
| 79 8/9, 89 2/9, 84, 86 3/9, 88 6/9, 83 6/9, 85 1/9, 89 4/9     |                       |                    |
| 84 8/9, 82 3/9, 87, 83 8/9, 89 7/9, 88 2/9, 89 4/9, 85 2/9     |                       |                    |
| 84 7/9, 87 6/9, 91 5/9, 83 2/9, 84, 85 3/9                     |                       |                    |
| Tulane University School of Medicine..                         | (1931)                | 85 7/9             |
| University of California Medical School .....                  | (1931)                | 80 5/9, 88 2/9     |
| 93 5/9, 90 5/9, 87 7/9, 87 5/9, 90 8/9, 84 3/9, 82 6/9, 88     |                       |                    |
| 88 6/9, 82 5/9, 80 1/9, 79, 89 6/9, 86 7/9, 85 4/9, 80 5/9     |                       |                    |
| 89 2/9, 85 4/9, 88, 83 8/9, 91 7/9, 86 2/9, 77 8/9, 84 2/9     |                       |                    |
| 89 6/9, 91 8/9, 88 8/9, 86 5/9, 87 4/9, 82 8/9, 88 2/9, 85 5/9 |                       |                    |
| 85 7/9, 83 2/9, 85 6/9, 87, 83, 84 5/9, 85 2/9, 92, 85 1/9     |                       |                    |
| 76 6/9, 86 2/9, 83, 87 5/9, 87 3/9, 79 8/9, 85 2/9, 85         |                       |                    |
| University of Illinois, College of Medicine .....              | (1931)                | 86 1/9             |
| University of Minnesota Medical School .....                   | (1928) 81 7/9; (1930) | 84 7/9             |
| University of Pennsylvania, School of Medicine .....           | (1929)                | 82 2/9             |
| University of Rochester Medical School .....                   | (1929) 91 6/9; (1930) | 77 3/9             |

FAILED

|                                               |                       |        |
|-----------------------------------------------|-----------------------|--------|
| Bordeaux (France) Faculty of Medicine .....   | (1930)                | 65 8/9 |
| Creighton University School of Medicine ..... | (1930) 67 5/9; (1931) | 74 7/9 |
| University of Amsterdam (Holland).....        | (1901)                | 65 7/9 |
| University of Tomsk (Russia).....             | (1913)                | 64     |

State Board News Items, November 1931

On September 25, 1931, the Appellate Court, Northern Division, rendered an opinion (67 California Appellate 60) sustaining the Board of Medical Examiners in its revocation of the license of Pearl J. Anderson, based on a charge of aiding and abetting an unlicensed practitioner named Clodine Brown, then alleged to be operating the S. J. Bridge Cancer Cure, Majestic Theater Building, Los Angeles.

"A movement by the San Joaquin and other chapters of the California Association of Chiropractors to permit patients in public hospitals to be treated by chiropractors if they desire has resulted in official negotiations toward that end by the California State Board of Chiropractic Examiners . . ." (Stockton Record, September 30, 1931).

"The state has the right to enact a statute prohibiting the use of the initials 'M. D.' after the name of any person who shall not have been admitted to practice medicine within the state, according to a decision by the Appellate Department of the Superior Court today. The decision, written by Presiding Judge Victor R. McLucas and concurred in by Judge Leon R. Yankwich, upheld the conviction of Orin Joslin for holding himself out as a physician and using the M. D. after his name . . ." (Los Angeles Herald, October 15, 1931.

"Unearthing what they believed was a scheme to prey upon wealthy women by prescribing narcotics for them in the guise of a harmless prescription, police and federal officers today broke into the hotel room of Henry Miller, thirty-seven, at 6370 Lexington Avenue, and arrested him on felony charges of violation of the State Medical and Poison Acts. The raiders confiscated alleged forged membership cards of the California State and Los Angeles County Medical Associations, asserted forged narcotic prescriptions, two vials of morphin and heroin tablets and a complete hypodermic set. According to Narcotic Inspector Moody and Policemen Maney, Bailey, Christopher, and Edmonds, Miller, under the name of Dr. E. N. Young, M. D., forged stolen narcotic prescriptions and obtained morphin, a quarter of a grain of which he placed in otherwise harmless powder,



then given his patients, with surprising results. . . . His first step in the alleged scheme to make drug users of his patients, according to officers, was to give those who called upon him for treatment what he called a 'tonic' prepared with morphin, which he made up himself. Then when the narcotic habit had firmly gripped the victims, Miller assertedly forged narcotic prescriptions, by which his patients could obtain drugs from Hollywood pharmacies" (Hollywood *News*, October 9, 1931).

"Conrad J. Anderson, who assertedly treated patients with 'Cosmic Rays' emanating from his trembling finger tips, yesterday was fined \$500 by Municipal Judge Frank M. Smith for practicing medicine without a license" (Los Angeles *Illustrated Daily News*, September 25, 1931). "His cosmic-ray treatments given Mrs. A. E. Hoover, 1122 Wesley Avenue, Pasadena, for which he charged the woman's family \$1200, resulted in his arrest after Mrs. Hoover's death" (Los Angeles *Express*, September 22, 1931).

"Charles H. Bell, man of many aliases, according to the police, is held in the city prison on a grand theft charge. (He) is in reality an ex-convict with twenty-five aliases, police said, chief of which was the name of Dr. Charles H. Hudson. . . . The man, identified through the work of Lieutenant Emmett Hogan of the Identification Bureau here, is a Columbia University graduate, an ex-Army officer, and a Doctor of Medicine. At one time, according to information obtained by Hogan, there were three hundred complaints against Hudson in Chicago alone. . . ." (San Francisco *Call-Bulletin*, October 13, 1931).

"The mysterious death in a Chico hospital last night of a 32-year-old man a few hours after he had suddenly collapsed in the office of J. W. Conway, 'Indian Herb Doctor,' was today made the matter of an official state investigation. . . . The man is Harry Dobson, a laborer of Corning. . . . Questioned by authorities, Conway denied he had ever given any herbs to Dobson; however, a brother of the dead man said Dobson had been treated by the Indian herbalist for some time past. . . . Conway has been in trouble with the State Board of Medical Examiners on several occasions and is awaiting trial on the fourth charge of violation of the Medical Practice Act that has been preferred against him" (Sacramento *Bee*, October 15, 1931).

"Two 'witch doctors' were freed today on their promise to the court to desist from voodooistic practices. Mercedes de Ortiz, forty-five, was released in Judge Oda Faulconer's court on one year's probation under a sentence of 180 days in the county jail. The sentence was suspended on the woman's promise to refrain from practicing medicine in violation of the State Medical Practice Act. . . . Her activities were uncovered by state authorities when they investigated the death of the infant Eduardo Perez, nine months' old son of Mr. and Mrs. Bartolo Perez of 1661 East 111th Place. . . ." (Los Angeles *Express*, September 25, 1931).

According to reports, Conrad F. Holst was on September 24, in the Municipal Court of Los Angeles, sentenced to pay a fine of \$500 or serve one hundred days in the county jail, following his being found guilty of a charge of violating the Medical Practice Act. The fine was paid.

"Renewing the State Medical Board's drive to rid Los Angeles County of 'voodoo witch doctors,' Special Agent William Byrne sped to San Bernardino today in search of Raoul S. Dosal. . . ." (Los Angeles *Express*, September 28, 1931). Dosal is alleged to carry with him a rubber stamp reading "Dr. R. S. Dosal, 1049 Grandee Ave., Los Angeles, California" and is alleged to have entered the darkened bedroom of a sick infant, where he claimed to have given the child three injections. The child became worse, a doctor was called, but "the child died soon after." No

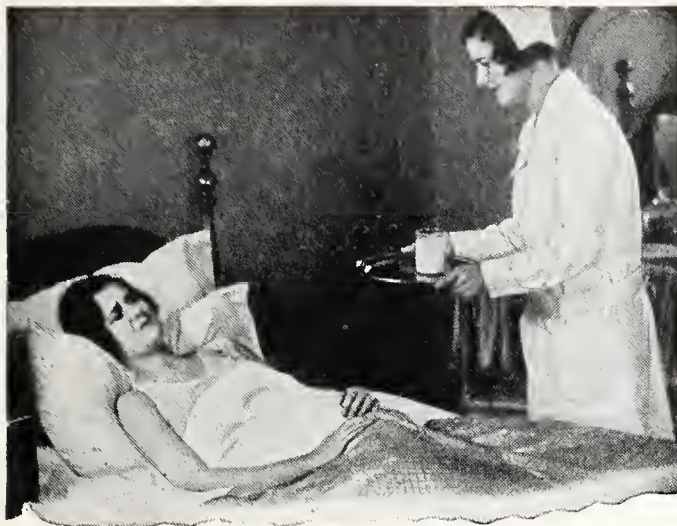
record can be found of any individual of this name having medical credentials.

"Strange stories sometimes are recorded in court opinions after the parade of humanity's struggles passes by, but seldom has a more unusual case been found than that of Lloyd E. Tilbury and his radio treatment, which is involved in an opinion written by Superior Judge Joseph L. Allen of Santa Ana while he recently was on the Fourth District Appellate Court bench at San Diego. Fact outstrips fiction in the bizarre enactment of the drama which ended with the Appellate Court's affirming the \$30,000 judgment against Tilbury, a Los Angeles osteopath, after the condition of nine-year-old Jodell Kershaw of Los Angeles had become steadily worse under his radio treatment. The story, as told in Judge Allen's opinion, began when the little girl's mother, Della Kershaw, decided that an operation for pus forming in the bone of one leg would leave a scar which would end her promising career as a dancer. She asked a friend to find out if Tilbury could cure the trouble without an operation. After a 'phone call to Tilbury he sent word for the girl to write her name on a piece of paper and send it to his office. Then the radio system came into play. Tilbury placed the paper under a metal plate connected with his radio diagnostic machine and with the coöperation of his wife, Helen L. Tilbury, determined that Jodell had a severe pain in her left leg and hip. A part of the apparatus consisted of a rubber rod filled with wooley cloth. This rod Tilbury rubbed over his wife's bared abdomen, meanwhile turning the dials on the diagnostic radio, some of which were used for tuning in on different kingdoms, such as the animal, vegetable and mineral kingdom. . . . The girl was brought to his office and electrodes connected with the machine were placed on the girl's neck, stomach, and leg. Tilbury turned the dials on the device and as he rubbed the rubber rod again over Mrs. Tilbury's abdomen she exclaimed, 'Yes, that is the pain in the leg; it is a very bad pain.' The next step was to discover the treatment for the pain. Mrs. Tilbury secured a bottle of vinegar and her husband placed it in connection with the metal plate and the radio box. Again he rubbed the rubber rod over his wife's stomach and, after a moment he said, 'Yes, vinegar is fine; we will use hot vinegar stupes for the affected parts, for the pain in her leg.' From July 17 to August 14, 1927, little Jodell received radio treatments, another part of which consisted of wrapping her in a magnetic blanket. In the meantime Tilbury and his wife had gone on a vacation. The opinion then related how a Doctor Peterson and a nurse continued the series of events. Jodell's mother wished to know what food was best for her, so the nurse was sent out for an assortment of fruit, which was given the usual test on the metal plate, while Doctor Peterson rubbed the rubber rod over the nurse's bared stomach. He finally pronounced that all the fruit, with the exception of the oranges, would be satisfactory. The little dancer continued to get worse and finally, alarmed at the condition of the leg, the mother had Jodell taken to a hospital, where she was operated upon, not once but several times, in an attempt to save her leg. The opinion said she probably would suffer for years from the condition in her limbs" (Santa Ana *Register*, September 18, 1931).

The Board of Osteopathic Examiners revoked the license of Lloyd E. Tilbury on March 30, 1929.

*The Effect of Cooking on the Digestibility of Meat.*—Raw meat is digested *in vitro* much more slowly than cooked meat. Overcooked meat is very slowly digested as compared with underdone meat. The maximum rate of digestion is obtained with underdone roast meat. Rewarmed underdone meat does not diminish its digestive rate. Reheating with consequent overcooking diminishes the rate of digestion. The rate of digestion of meat (raw or cooked) is the same whether trypsin alone be used or pepsin followed by trypsin.—W. M. Clifford, *Biochem. J.*, 24:1728, 1931.





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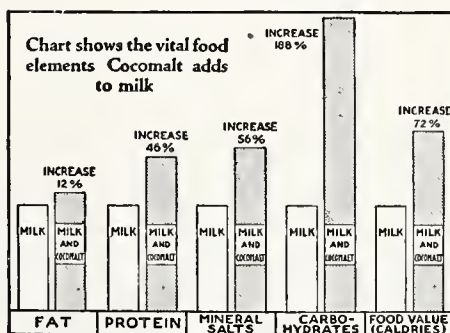
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## TRUTH ABOUT MEDICINES

(Continued from Page 31)

undertook an investigation of silver nitrate capsules and ampoules to determine whether the market supply was satisfactory. The Laboratory found that the various brands of silver nitrate ampoules contained in both wax and glass ampoules showed that the strength of the silver nitrate solution is generally somewhat greater than the amount claimed and that practically none of the silver is absorbed by the wax ampoule. The quantity of solution found in the glass ampoules complied with that claimed. On the other hand, in the wax ampoules not only did the quantity of solution vary with each brand, but the products of the various firms differed markedly, ranging from 0.07 cubic centimeters to as high as 0.26 cubic centimeters. The Laboratory points to the possible danger from fragments of glass which may form when the glass ampoule is opened and which may reach the infant's eye when the silver solution is instilled. The Council on Pharmacy and Chemistry considered the report of the Laboratory and authorized its publication. In recommending endorsement and publication of the report the Council's referee expressed gratification at the reassurance given by the report that the wax capsules do not inactivate the silver nitrate and called attention to the fact that the use of glass ampoules may be an open invitation to accident.—*Journal of the American Medical Association*, September 5, 1931, p. 706.

From *New and Nonofficial Remedies to the United States Pharmacopeia*.—Of the forty new products in the United States Pharmacopeia X, thirty-one came from New and Nonofficial Remedies. No better recommendation can be given for "N. N. R."—*Journal of the American Medical Association*, September 26, 1931, p. 931.



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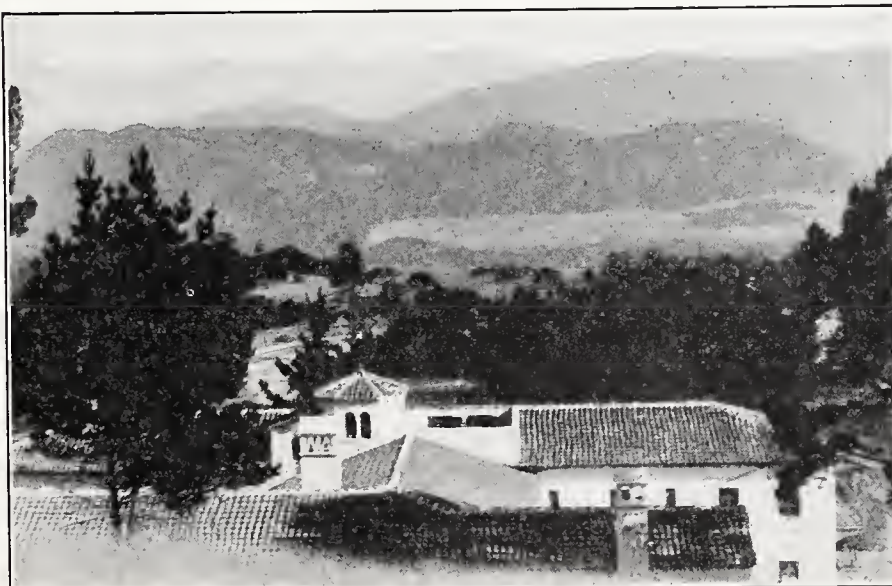
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# APPROVED CLINICAL LABORATORIES

## Excerpts from American Medical Association Essentials for an Approved Clinical Laboratory

### DEFINITION

*"\* \* \* A clinical pathologic laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body."*

*"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."*

*"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."*

### THE DIRECTOR

*"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."*

*"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."*

*"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."*

*"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."*

### RECORDS

*"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."*

### PUBLICITY

*"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."*

### FEES

*"\* \* \* There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. \* \* \*"*

The following laboratories in California are among those approved by the Council on Medical Education and Hospitals of the American Medical Association:

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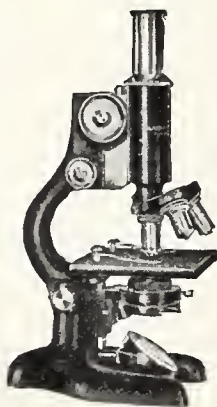
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## The Seal Sale's 25th Anniversary

THE first Christmas Seal Sale in the United States was promoted 25 years ago by Emily P. Bissell of Wilmington, Delaware, to raise money for a tuberculosis hospital on the banks of the Brandywine River. Ever since, she has been identified with the campaign against tuberculosis both in her home state and in the nation, and during this period has witnessed the inroads of the disease reduced by half.

The sum raised in 1907 was devoted to the single institution she had in view; today there are more than two thousand tuberculosis associations and committees engaged in raising funds with which to fight tuberculosis in their own communities. As a result of these activities, tuberculosis sanatoria have been erected; summer camps for children conducted; public health nurses maintained, and educational work prosecuted. Yet there is a great deal left to do, for tuberculosis is still the leading cause of death among persons between 15 and 45 years of age.

At the last annual meeting of the National Tuberculosis Association, Miss Bissell was the guest of honor at a session held to commemorate the 25th Christmas Seal Sale. She explained how she came to adopt this means of raising money.

"It was not a sudden inspiration or detached idea," she said. "I had been looking for something of the sort for years. I went into volunteer social work in my teens, serving on boards and committees, and I had learned that it is comparatively easy to get five and ten-dollar subscriptions. It is also possible, if the confidence of the community is obtained, to get fairly large contributions, into the thousands of dollars. But the real difficulty is to gain the participation of the huge general public—those able to give from ten cents to a dollar—who should be reached in any cause where popular education and co-operation are needed.

"I never found the answer to this question until I read an article by Jacob Riis describing a Christmas Seal which the Danish government sold like stamps in the post offices for the benefit of a children's sanatorium. Einar Holboell, a post office clerk, originated the idea, and it had been unusually successful.

"Just at the time I read about this, a group of physicians in Wilmington who had established a shack among the hills with one nurse and half a dozen patients, came to me in despair and begged me to help them, for their money was gone.

"I put the matter up to the Delaware Chapter of the Red Cross and they gave me the power to go ahead—on condition that I raise the money myself to finance the sale, as the chapter was powerless to do so."

Miss Bissell then described how she consulted the best advertising men she could find for advice and suggestions. All prophesied failure. Yet the large stores in Philadelphia came in, the newspapers opened their columns, and the sale was permitted in post offices and other public places. The following year the sale was extended throughout the nation, still against the advice of advertising men who considered the success of the first campaign to be due to novelty.

"I selected from a gazette of newspapers six thousand journals to which I sent copy about the seal and its messages," said Miss Bissell. "As soon as this was published the national Red Cross, which that year sold the seals from Washington headquarters, had to put on twenty clerks to cope with the rush orders.

"But the Red Cross is an emergency organization. It must keep its personnel free for emergencies. So when the World War called for full activity, the Christmas Seal Sale was turned over to the National Tuberculosis Association, which has conducted it since that time not only as a fund raising enterprise but also as a symbol of health with an important educational function.

"As I look at the Christmas Seal today I see the hordes of people who had no hope, and who have it now.

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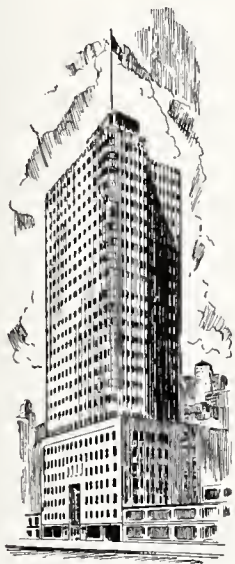




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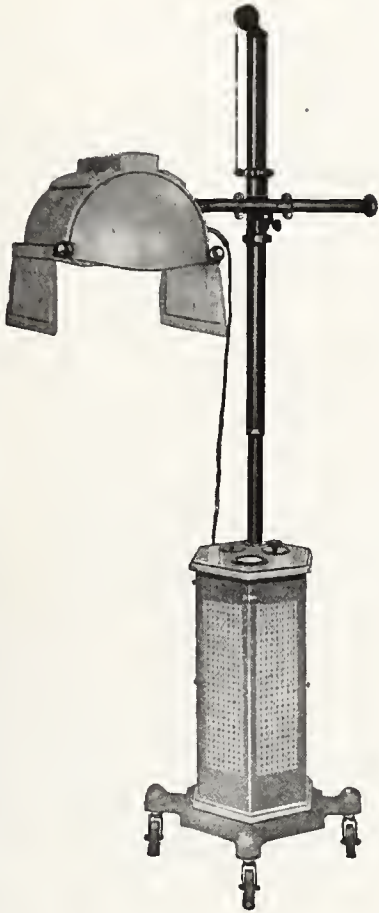
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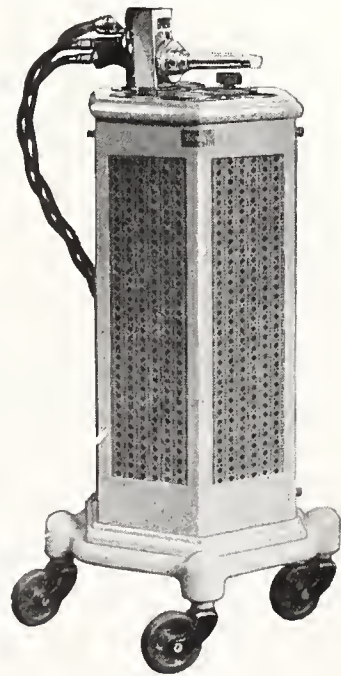
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| William Duffield, Los Angeles.....                                                                                                                                                                                                              | 1933          | Percy T. Magan (Chairman), Los Angeles.....                                  | 1934          |
| R. Manning Clarke (Chairman), Los Angeles.....                                                                                                                                                                                                  | 1934          | The Secretary.....                                                           | Ex-officio    |
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| The Secretary.....                                                                                                                                                                                                                              | Ex-Officio    | William Duffield, Los Angeles.....                                           | 1934          |
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| George D. Lyman, San Francisco.....                                                                                                                                                                                                             | 1934          | Emma W. Pope (Chairman).....                                                 | Ex-officio    |
| The Secretary.....                                                                                                                                                                                                                              | Ex-officio    | <b>Cancer Commission</b>                                                     |               |
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\* Each year the California Medical Association offers two prizes of One Hundred and Fifty Dollars each, with certificates of award, for the two best papers on clinical and research subjects. Full information concerning the conditions laid down in these competitions may be had by addressing the Association Secretary.

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## Miscellaneous California Medical Organizations

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San Francisco, 337 State Building  
Los Angeles, 821 Associated Realty Building  
Sacramento, Box 1159  
President, G. E. Ebright, San Francisco.  
Director, Giles S. Porter, Los Angeles.

**Board of Medical Examiners of the State of California**  
San Francisco, 623 State Building  
Los Angeles, 812 Associated Realty Building  
510 West Sixth Street

Sacramento, 420 State Office Building  
President, P. T. Phillips, Santa Cruz.  
Secretary, C. B. Pinkham, 623 State Building, San Francisco.

**Southern California Medical Association**  
President, Fred B. Clarke, 1006 Pacific Southwest Building, Long Beach.  
Secretary, Carl R. Howson, 711 Merritt Bldg., 307 W. Eighth Street, Los Angeles.

**California Northern District Medical Society**  
President, D. Schuyler Pulford, Woodland Clinic, Woodland.

Secretary, Edward S. Babcock, 820 Medico-Dental Building, 1127 Eleventh Street, Sacramento.

**Better Health Foundation**  
President, Reginald Knight Smith, 490 Post Street, San Francisco.  
Chairman Executive Committee, Walter B. Coffey, 65 Market Street, San Francisco.  
Treasurer, John Gallwey, 1195 Bush Street, San Francisco.  
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| <b>ALUM ROCK SANATORIUM</b><br>For Treatment of Tuberculosis<br>San Jose, California                                   |
| <b>BANNING SANATORIUM</b><br>Treatment of Tuberculosis and Throat Diseases<br>Banning, Calif.                          |
| <b>CALIFORNIA SANITARIUM</b><br>For the Treatment of Tuberculosis<br>Belmont, San Mateo County, Calif.                 |
| <b>CANYON SANATORIUM</b><br>For the Treatment of Tuberculosis<br>Redwood City, Calif.                                  |
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| <b>COLFAX SCHOOL FOR THE TUBERCULOUS</b><br>For the Treatment of Tuberculosis<br>Colfax, Calif.                        |
| <b>COMPTON SANITARIUM AND LAS CAMPANAS HOSPITAL, COMPTON</b><br>Neuropsychiatric and General                           |
| <b>DANTE SANATORIUM</b><br>Limited General Hospital<br>Van Ness and Broadway, San Francisco                            |

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| <b>FRANKLIN HOSPITAL</b><br>Limited General Hospital<br>Fourteenth and Noe Streets, San Francisco                                      |
| <b>GRACE DEERE VELIE METABOLIC CLINIC</b><br>P. O. Box 926, Carmel                                                                     |
| <b>GREENS' EYE HOSPITAL</b><br>Consultation, Diagnosis and Treatment of Diseases of the Eye<br>Bush and Octavia Streets, San Francisco |
| <b>THE GREER HOME, Inc.</b><br>Convalescent Home<br>6000 Fulton Street, San Francisco                                                  |
| <b>JOHNSTON-WICKETT CLINIC</b><br>Anaheim, Calif.                                                                                      |
| <b>KEARNEY RETREAT</b><br>Hayward<br>For care of Nervous, Exhausted and Convalescing Patients                                          |
| <b>LAS ENCINAS SANITARIUM</b><br>Nervous and General Diseases<br>Las Encinas, Pasadena, Calif.                                         |
| <b>LIVERMORE SANITARIUM</b><br>Nervous and General Diseases<br>Livermore, Calif.                                                       |

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|------------------------------------------------------------------------------------------------------------------------|
| <b>MONROVIA CLINIC</b><br>Diagnosis and Treatment of Tuberculosis<br>137 N. Myrtle Street, Monrovia, Calif.            |
| <b>OAKS SANITARIUM</b><br>For the Treatment of Tuberculosis<br>Los Gatos, Calif.                                       |
| <b>PARK SANITARIUM</b><br>Mental and Nervous, Alcoholic and Drug Addictions<br>1500 Page Street, San Francisco, Calif. |
| <b>POTTENGER SANATORIUM AND CLINIC</b><br>For the Treatment of Tuberculosis<br>Monrovia, Calif.                        |
| <b>SAINT FRANCIS HOSPITAL</b><br>Limited General Hospital<br>Bush and Hyde Streets, San Francisco                      |
| <b>ST. LUKE'S HOSPITAL</b><br>Limited General Hospital<br>27th and Valencia Streets, San Francisco                     |
| <b>ST. MARY'S HOSPITAL</b><br>General Hospital<br>2200 Hayes Street, San Francisco, Calif.                             |
| <b>SCRIPPS METABOLIC CLINIC</b><br><b>SCRIPPS MEMORIAL HOSPITAL</b><br>La Jolla, San Diego, Calif.                     |
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The five thousand and more readers of CALIFORNIA AND WESTERN MEDICINE often have occasion to purchase articles advertised in this publication.

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**American College of Surgeons Broadcasts Its Edicts on Ethics.**—Each Fellow of the American College of Surgeons has signed a pledge, one portion of which reads as follows:

"I pledge myself, so far as I am able, to avoid the sins of selfishness; to shun unwarranted publicity, dishonest money-seeking, and commercialism as disgraceful to our profession; to refuse utterly all money trades with consultants, practitioners or others; to teach the patient his financial duty to the physician and to expect the practitioner to obtain his compensation directly from the patient; to make my fees commensurate with the service rendered and with the patient's rights; and to avoid discrediting my associates by taking unwarranted compensation."

On June 7, 1921, the board of regents of the College passed the following resolution:

"Be It Resolved, That to accept rebates on glasses and other surgical apparatus and supplies is considered unethical and not consistent with Fellowship in College."

The American College of Surgeons is opposed to the practice of receiving rebates, commissions, or compensation of any kind for reference of patients to diagnostic laboratories, and commends the action taken by the California Medical Association at the meeting of the House of Delegates, April 27, 1931, approving the resolution presented by its Council as follows:

"Resolved, That it is the sense of the Council and it is declared as a statement of ethics in that regard that any physician who is a participating member of a diagnostic laboratory, and who receives as compensation from that laboratory a portion of the fees paid by patients he has referred to that laboratory, shall be considered unethical. . . ."

Violation of the principles of the College by its Fellows is to be the subject of definite action at the annual meeting of the board of regents in October, 1931.

We look for the coöperation of every member who is in accord with our ideals.—Franklin H. Martin, Director-General, *Nebraska Medical Journal*, October, 1931.



## BOOK REVIEWS

### List of Books Received

### BOOKS RECEIVED

**Surgical Pathology of the Skin, Fascia, Muscles, Tendons, Blood and Lymph Vessels.** By Arthur E. Hertzler, M. D., surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas; professor of surgery, University of Kansas. Cloth. Pp. 301, with 260 illustrations. Price, \$5. Philadelphia, Montreal, and London: J. B. Lippincott Company, 1931.

**Physicians' Manual of Birth Control.** By Antoinette F. Konikow, M. D., author of "Voluntary Motherhood." Cloth. Pp. 245. Price, \$4. New York: Buchholz Publishing Company, 1931.

**Infections of the Kidney.** By Meredith F. Campbell, M. D., F. A. C. S., attending urologist, Babies Hospital, New York Nursery and Child's Hospital; assistant visiting urologic surgeon, Bellevue Hospital, New York. Leather. Pp. 343. Price, \$3. New York and London: Harper Brothers, 1931.

**The Nurse's Medical Lexicon.** For the Use of Graduate and Student Nurses, of Premedical and Dental Students, and of the General Public. By Thomas Lathrop Stedman, A. M., M. D., editor of the "Twentieth Century Practice of Medicine," of the "Reference Handbook of the Medical Sciences," and of "A Practical Medical Dictionary"; formerly editor of the "Medical Record." Cloth. Pp. 629. Price, \$2 net. New York: William Wood & Company, 1931.

**Theorie und Praxis der Krebskrankheit.** Von Privatdozent Dr. Felix Mandl, Assistent der II. Chirurgischen Universitäts-Klinik in Wien. (Vorstand: Professor Dr. W. Denk.) Mit 28 Abbildungen. Wien: Verlag von Wilhelm Maudrich, 1932.

### BOOK REVIEWS

**A Textbook of Laboratory Diagnosis With Clinical Applications for Practitioners and Students.** By Edwin E. Osgood and Howard D. Haskins. Pp. 475. Illustrated. Philadelphia: P. Blakiston's Son & Company, 1931. Price, \$5.

This book is not only a welcome addition to the laboratory library, but should serve also as a live handbook for the practitioner.

The plan of the book is in a division of clinical and technical data—a difficult plan to follow and overlappings are unavoidable. The clinical matter is presented broadly, as indicated by captions as: Disorders of the Kidney and Urinary Tract with Especial Reference to Nephritis, Disorders of Carbohydrate, Protein and Fat Metabolism with Especial Reference to Diabetes Mellitus and Disturbance of Acid-Bone Equilibrium, Disorders of Gastro-Intestinal Tract, etc. The normal, anatomic and functional phase, is first briefly discussed, upon which morbid changes are developed. Laboratory findings are herewith correlated.

Especially noteworthy is that portion devoted to Laboratory Methods. Here is no mere catalogue of obsolete procedures, but real live up-to-date technique. Many of the author's helpful modifications are presented. The book has a good bibliography and is well indexed.

E. A. V.

**Treatment of Injury by the General Practitioner.** By Clay Ray Murray. Two volumes. (Harper Medical Monographs.) Pp. 412. New York and London: Harper & Brothers, 1931. Price, \$5.

This volume does not pretend to teach the subject in hand, but does give the author's own views, his methods of procedure. A fair knowledge of the subject is a requisite.

Throughout the volume the methods advocated and the advice given are sane and simple. Simplicity is the keynote. The author's frequently repeated warning—to encourage voluntary motion "within pain limits"—illustrates the rationality of his teachings. Such advice as early physiotherapy to prevent fibrosis of muscles, etc., instead of physiotherapy to break up adhesions, as so often used, is another illustration.

The author's rules as to the treatment of burns are good and rendered in such a way as to be easily followed.

The chapter on fractures, naturally a difficult one, especially in a book of this kind, is patchy. His general principles, his advice as to emergency care, are good. He gives his own likes and dislikes freely and is careful to state his reasons. The subject of hand fractures is very well given, but some of the major fractures not so well, mainly, it seems to me, through lack of space.



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This book actually does what it sets out to do, namely, to give a concise résumé of the author's own methods.  
R. L. D.

**The Clinical Interpretation of Blood Examinations.** By Robert A. Kilduffe. Pp. 629. Illustrated. Philadelphia: Lea & Febiger, 1931. Price, \$6.50.

This book fills a long-needed want by covering the overlap between the clinical and laboratory methods in clinical diagnosis in that it covers the various laboratory methods, their efficiency, reliability and worth in their relation to specific clinical problems involved.

It has heretofore been a problem for the clinician not thoroughly conversant with laboratory methods and technique to select the laboratory methods or tests which are applicable and reliable as aids in his diagnosis of a given clinical problem.

There have been published in the literature so many different and new methods of the same tests that it has been very difficult for the clinician to select the one most reliable. Many of them were lauded highly and flourished for a time, then were modified, supplanted or abandoned.

The bringing together of these facts in a concise and orderly manner makes this a book of the greatest value.

H. R. O.

(Continued on Page 13)



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### BOOK REVIEWS

(Continued from Page 11)

**Operative Obstetrics on the Manikin for Students and Practitioners.** By Charles B. Reed. Pp. 314. Illustrated. Philadelphia: P. Blakiston's Son & Company, Inc. 1931.

This book is a handy volume of 309 pages. Its text is concise and clear and the many illustrations are well done. The first chapter deals with the fundamentals necessary for a proper understanding of the mechanical steps which follow, otherwise the entire book is taken up with that type of pathology which calls for operative interference. A large percentage of the operations can be practiced on the manikin, which makes a thorough visualization possible. The rest are so clearly described and illustrated that it makes their execution seem easy.

This work should be an excellent text for the student in manikin class work and is a valuable hand book for those who do operative obstetrics. K. L. S.

**An Introduction to the Literature of Vertebrate Zoölogy Based Chiefly on the Titles in the Blacker Library of Zoölogy.** The Emma Shearer Wood Library of Ornithology; The Bibliotheca Osleriana and other Libraries of McGill University, Montreal. Compiled and edited by Casey A. Wood. Pp. 643. London: Oxford University Press, 1931.

The serenity of this beautiful book reflects the dignified ease of Dr. Casey Wood's, not old age, but retirement. It contains a delightful introduction of 147 pages, a guide to the literature of zoölogy, interspersed with remarks biographical and philosophical which is followed by a detailed index and catalogue of authors and titles of almost five hundred pages more.

The work is an ornament to the many laurels of the veteran ophthalmologist. L. H.

**Selections from the Papers and Speeches of John Chalmers DaCosta.** Pp. 440. Philadelphia and London: W. B. Saunders Company, 1931. Price, \$6.50.

If one conjures any doubt that medicine had fangs in the good old days, he should not fail to read the first chapter in this book, "Medical Paris During the Reign of Louis Phillipe." Then he should heave a sigh of relief in the realization that medical men of our day at least show some improvement in their relationship with each other.

In the chapter on "The Trials and Triumphs of the Surgeon," the author emphasizes the ideals of the high calling of medicine and strikes an emphatic note when he says, "A rich man who has not brought honor to his

profession is not a real success." And again, he abhors the exaggerated ego seen not infrequently in medical men, when he says, "The proper attitude toward all scientific questions is one of humility."

His apothegms, aphorisms, and epigrams interest, as well as amuse the reader.

At his "Dickens's Doctors" we cannot help but chuckle, as we visualize how seriously some of our predecessors took themselves. Some of their descendants we see today.

His sketch of Baron Larrey is vivid and stimulating, as are those of Samuel W. and William D. Gross, and W. W. Keen.

The author's defense of Crawford Long's discovery of ether anesthesia is commendable, but one is surprised to find in two other chapters that he eulogizes Morton as the discoverer.

Other chapters let the surgeon see himself as others see him. This is always beneficial.

Any surgeon who reads this book will feel proud of the part that America has taken in the advancement of surgery, as told so dramatically by Doctor DaCosta. Any surgeon who fails to read this book has missed a gem in surgical sketches, the like of which does not often appear. E. L. G.

**Nutrition and Diet in Health and Disease.** By James S. McLester. Second edition. Pp. 891. Philadelphia and London: W. B. Saunders Company, 1931.

The above book is a nine-hundred page volume, the first third of which is devoted to the physiology of digestion and absorption, nutritional factors, food products, and diet in health. The last two-thirds deals with diets in various diseases. Among these are included deficiency diseases, diabetes mellitus, gout, obesity, allergy, Bright's disease, the various digestive disorders, blood diseases, etc. Part Three, constituting about one hundred pages, has tables, charts, diets, and other useful material.

The volume is comprehensive and conservative and should be of value to practitioners of medicine. H. E. T.

**Textbook of Physical Therapy.** By William Benham Snow. Pp. 708. Illustrated. New York: Scientific Authors' Publishing Company, 1931. Price, \$10.

The book is voluminous. It deals with the clinical nature and action of the constant and static current, high frequency currents, both medical and surgical. The exposition and application of the static current is materially instructive, the most elaborate so far appearing in English print.

(Continued on Next Page)

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### BOOK REVIEWS

(Continued from Previous Page)

The clear typing and illustrations, arrangement of text, extensive footnotes and references, in addition to the literary quality of the book, makes attractive reading. It embraces the experience of a man's active labor over some thirty years in the field of physical therapy. It offers the best cross-section of the evolutionary history of physical therapy in America that has yet been written.

While not recommended as a beginner's textbook, the physician well grounded in physical therapy technique will find it a valuable acquisition in his use of this medical adjunct.

H. L. L.

**A Textbook of Surgery.** By John Homans. Pp. 1195. Illustrated. Springfield: Charles C. Thomas, 1931.

This is a textbook for medical students compiled by the author from his own lectures and teachings as well as those of the surgical department of Harvard Medical School.

The text covers the medical subjects amenable to surgical treatment, is very well arranged, exceptionally

well written and covers the various subjects from a point of view of diagnosis and treatment. Specific therapeutic suggestions are usually given with the consideration of each subject. There is a very complete bibliography at the back of the text.

The illustrations are poor, most of them being diagrammatic sketches. There are no photographs. It is regrettable that such an excellent text is not better illustrated.

L. R. C.

### TRUTH ABOUT MEDICINES

(Abstracts from reports of Council on Pharmacy and Chemistry of the American Medical Association)

In addition to the articles enumerated, the following have been accepted:

**Lederle Laboratories, Inc.**—Diphtheria Toxin-Antitoxin Mixture (0.1 L +), three-syringe packages; Pollen Antigens (Lederle), Series D packages; Prostrate Pigweed Pollen Antigen (Lederle); Summer Cypress Pollen Antigen (Lederle); Thromboplastin Local (Lederle).

**H. K. Mulford Company.**—Tuberculin Intracutaneous (Human Type), 3 cc. vial packages; Tuberculin Intracutaneous (Bovine Type), 3 cc. vial packages.

**Parke, Davis & Co.**—Glaseptic Ampoules Solution Glucose, 50 per cent, 100 cc.; Scarlet Fever Streptococcus Toxin for Preventive Immunization (Parke, Davis & Co.), six 1 cc. vial packages; Typhoid-Paratyphoid Vaccine (Prophylactic), ten 2½ cc. vial packages; Typhoid Vaccine (Prophylactic) ten 2½ cc. vial packages.

**E. R. Squibb & Sons.**—Neocinchophen (Squibb); Tablets Neocinchophen (Squibb), five grains.

**Frederick Stearns & Co.**—Synephrin Tartrate (Stearns); Synephrin Tartrate Solution, 3 per cent; Synephrin Tartrate Solution, 5 per cent; Synephrin Tartrate Emulsion Plain; Synephrin Tartrate Emulsion Compound.

The following articles have been exempted and included with the list of exempted medicinal articles (New and Nonofficial Remedies, 1931, p. 477):

**Arzol Chemical Company.**—Silver Nitrate Applicators (Silver Nitrate, 75 per cent).

**E. R. Squibb & Sons.**—Cinchophen (Squibb).

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The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

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**Solution Liver Extract Parenteral (Lederle).**—A sterile aqueous solution of a concentrated water soluble, nitrogenous, nonprotein fraction obtained from

(Continued on Page 17)

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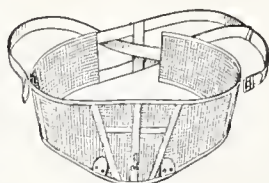


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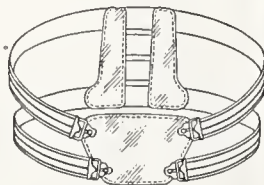
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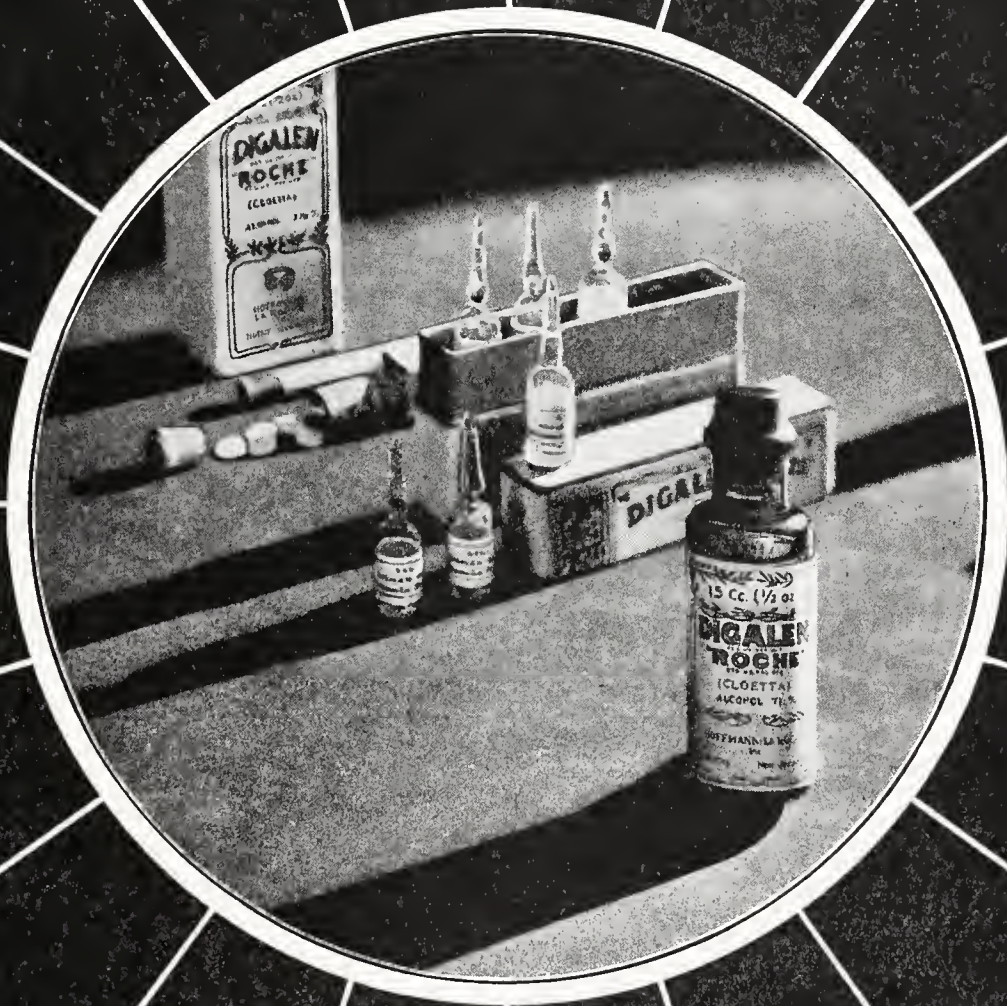
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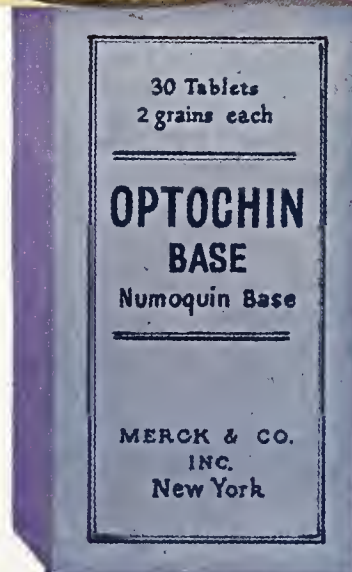
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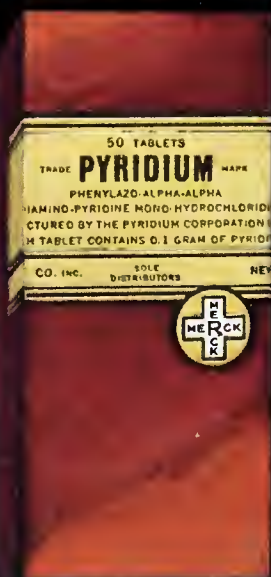
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## TRUTH ABOUT MEDICINES

(Continued from Page 14)

fresh mammalian liver. It is marketed in ampoules, each containing the material obtained from 100 grams of liver. Solution liver extract parenteral (Lederle) is proposed for intramuscular or intravenous injection in the treatment\* of pernicious anemia. Lederle Laboratories, Inc., Pearl River, New York.—*Journal of the American Medical Association*, October 3, 1931, p. 1077.

**Sandoptal.**—Isobutylallyl barbituric acid. Sandoptal differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced, one by an iso-butyl group and the other by an allyl group. The actions and uses of sandoptal are the same as those of barbital and its therapeutically useful derivatives. It is also supplied in the form of tablets sandoptal, 0.2 gram. Sandoz Chemical Works, Inc., New York.

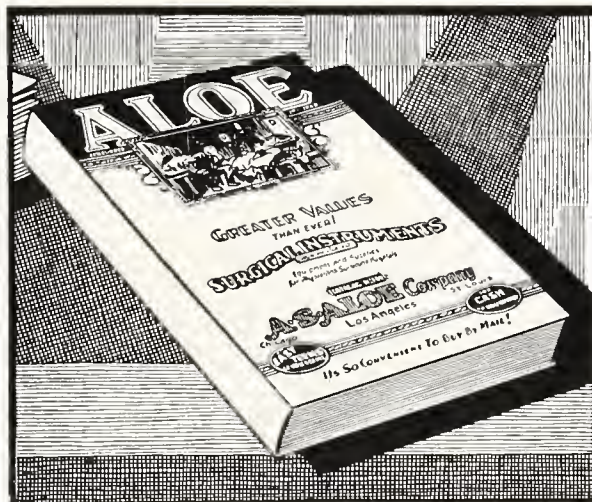
**Diphtheria Toxin for the Schick Test, Ready to Use Without Dilution (Squibb).**—A diphtheria toxin (New and Nonofficial Remedies, 1931, p. 383), obtained by growing diphtheria bacilli in broth, aging, and diluting with peptone solution. It is marketed in packages of one cubic centimeter containing sufficient for ten tests and in packages of ten cubic centimeters containing sufficient for one hundred tests. E. R. Squibb & Sons, New York.—*Journal of the American Medical Association*, October 17, 1931, p. 1149.

## FOODS

The following products have been accepted by the Committee on Foods of the American Medical Association for inclusion in accepted foods:

**Gold Medal Flour "Kitchen-Tested"** (Associate Companies of General Mills, Inc., Minneapolis, Minnesota).—A moderately "strong" hard-wheat  
(Continued on Next Page)

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## TRUTH ABOUT MEDICINES

(Continued from Previous Page)

patent flour designed for general baking purposes in the home. It is claimed to be a good quality "all purpose" flour for use in home baking, standardized in baking characteristics for uniform performance under normal home baking conditions.

**Gold Medal Flour (Associate Companies of General Mills, Inc., Minneapolis, Minnesota).**—A self-rising flour. A mixture of patent flour (Gold Medal Flour—"Kitchen-tested"), baking powder, containing monocalcium acid phosphate and sodium bicarbonate; and table salt. It is claimed to be especially adapted for cakes, biscuits, and pastry baking.

**Gold Medal Flour "Kitchen-Tested" Phosphate Added (Associate Companies of General Mills, Inc., Minneapolis, Minnesota).**—A moderately "strong" hard-wheat patent flour admixed with 0.5 per cent monocalcium acid phosphate; adapted to requirements of the Southern markets. It is claimed to be a good quality flour containing added monocalcium acid phosphate to counteract the addition of excessive quantities of baking soda in biscuit baking and intended especially for Southern markets.

**Walker's Big Dandy Bread and Walker's Redi-Sliced Bread (Walker Bread Company, Fort Worth, Texas).**—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**Certifoods Certified Nursery Foods—Green Peas (Curtice Brothers Company, Rochester, New York).** Canned sieved green peas. The minimum content of vitamins A, B, and C is certified and expressed on the label in vitamin units. No sugar or salt is added. The product is guaranteed to contain not less than three hundred units of vitamin A (Sherman method), five units of vitamin B (complex) (Sherman and Spohn method), and three units of vitamin C (Sher-

(Continued on Page 20)



# Relative Values of Carbohydrates

## New Findings Confirm Old Truths

Recent scientific investigations in rats (tabulated at the right) are in accord with many years of clinical observations on babies, as shown by the following excerpts from authoritative medical literature reflecting the consensus of three decades of pediatric experience.

| CHART OF CARBOHYDRATE HYDROLYSIS <sup>3</sup> |            |                                                                                                                               |                  |
|-----------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------|------------------|
| MILK SUGAR GROUP                              |            | MALT SUGAR GROUP                                                                                                              |                  |
| Lactose**<br>(Milk Sugar)                     |            | Starch                                                                                                                        |                  |
|                                               |            | Amylodextrin***                                                                                                               |                  |
|                                               |            | Erythro-dextrin***                                                                                                            | Achro-dextrin*** |
| Dextrose*                                     | Galactose* | Maltose**                                                                                                                     |                  |
|                                               |            | Dextrose*                                                                                                                     | Dextrose*        |
| CANE SUGAR GROUP                              |            | Note: The end product of maltose is all dextrose which means quicker assimilation than end products from other carbohydrates. |                  |
| Saccharose**<br>(Cane Sugar)                  |            |                                                                                                                               |                  |
| Dextrose*                                     | Levulose*  |                                                                                                                               |                  |

\*Monosaccharide \*\*Disaccharide \*\*\*Polysaccharide  
Of the monosaccharides, dextrose, the end product of maltose, is converted into glycogen more easily than levulose or galactose. Therefore, maltose, which splits into two molecules of dextrose, may be absorbed with much less digestive energy than either lactose or saccharose.

<sup>3</sup> Morse, J. L. & Talbot, F. B. *Boston Med. & Surg. J.*, 159:852.

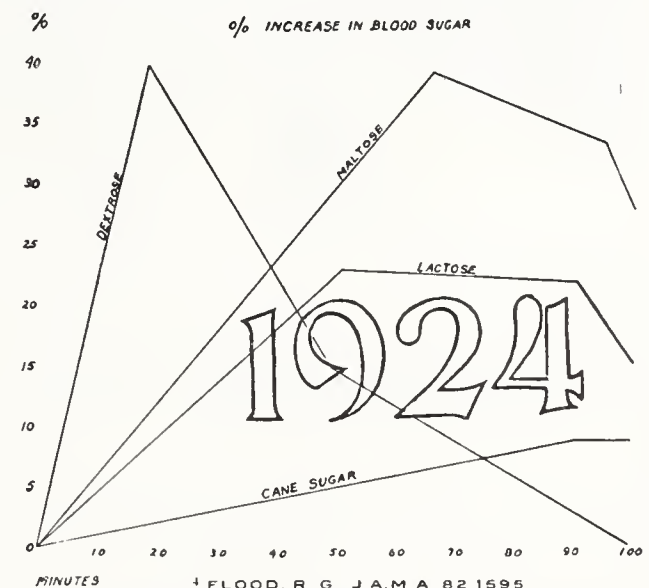
### RELATIVE ASSIMILATION VALUES OF VARIOUS CARBOHYDRATES<sup>1</sup>

|                           | Average per 100<br>gms. body weight |
|---------------------------|-------------------------------------|
| 1 MALTOSE.....            | 1.50                                |
| 2 DEXTRIN + MALTOSE.....  | 1.32                                |
| 3 Glucose + dextrin.....  | 1.32                                |
| 4 Glucose + sucrose.....  | 1.32                                |
| 5 Glucose.....            | 1.04                                |
| 6 Sucrose + maltose.....  | 0.98                                |
| 7 Fructose + glucose..... | 0.98                                |
| 8 Sucrose + dextrin.....  | 0.76                                |
| 9 Sucrose.....            | 0.76                                |
| 10 Fructose.....          | 0.5                                 |
| 11 Glucose + lactose..... | 0.26                                |
| 12 Lactose.....           | 0.16                                |
| 13 Galactose.....         | 0.1                                 |

These authors have also stated: "Maltose, fructose, glucose, starch and dextrin *lead* in nutritive value, *followed* by galactose, mannose, arabinose, xylose, lactose, sucrose and glycogen."<sup>2</sup>

<sup>1</sup> H. Ariyama and K. Takahasi: *Biochem. Z.*, 216:269 (1929) and <sup>2</sup> *J. Agr. Chem. Soc., Japan* 5; 674 (1929).

### RATE OF SUGAR ABSORPTION IN NEWBORN<sup>4</sup>



### MALTOSE OR LACTOSE IN INFANT FEEDING<sup>5</sup>

**Answer**—The superiority of one form of carbohydrate over another in artificial feeding of infants has been much discussed during recent years. It is generally accepted that cow's milk without modification is not a satisfactory infant food. So far as the carbohydrate is concerned, about one-fifth to one-eighth ounce per pound of infant's body weight is required daily. To supply this amount it is necessary to add carbohydrates in some form. Admitting that lactose is the sugar supplied in human milk, it does not follow that it is the sugar best tolerated in another medium, such as cow's milk. It is generally believed that lactose is more laxative than sucrose—that it must be fed with a certain amount of caution, as fermentative upsets are likely to follow if amounts approximating that found in human milk are fed. There is cause for disagreement among clinicians, as it is important to consider the other food elements; i.e., the amounts of fat and protein fed as well as the medium in which they are fed. For example, when lactic acid milk is used, more added carbohydrate seems to be tolerated than when sweet milk mixtures are fed. Sucrose has the advantage of being much cheaper and is always available. Evidence has not been presented that it should

not be used in infant feeding. With its general use in large infant welfare clinics where supervision is a matter of routine, there is less to be said against it as far as clinical results are concerned. The complaint that it is too sweet is not often encountered when the usual amounts are fed. The dextrin-maltose preparations possess certain advantages. When they are added to cow's milk mixtures, we have a combination of three forms of carbohydrates, lactose, dextrin and maltose, all having different reactions in the intestinal tract and different absorption rates. Because of the relatively slower conversion of dextrins to maltose and then to dextrose, fermentative processes are less likely to develop. Those preparations containing relatively more maltose are more laxative than those containing a higher percentage of dextrin (unless alkali salts such as potassium salts are added). It is common experience clinically that larger amounts of dextrin-maltose preparations may be fed as compared with the simple sugars. Obviously, when there is a lessened sugar tolerance such as occurs in many digestive disturbances, dextrin-maltose compounds may be used to advantage. <sup>5</sup> *Queries and Minor Notes, J. A. M. A.*, 88:266.



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## TRUTH ABOUT MEDICINES

(Continued from Page 18)

man-LaMer method) per ounce. It is recommended for use in infant feeding and for convalescent and special diets in which a smooth diet is indicated.

**Certifoods Certified Nursery Foods—Green Beans** (Curtice Brothers Company, Rochester, New York). Canned sieved green beans. The minimum content of vitamins A, B, and C is certified and expressed on the label in vitamin units. No sugar or salt is added. The product is guaranteed to contain not less than two hundred and fifty units of vitamin A (Sherman method), three units of vitamin B (complex) (Sherman and Spohn method), and two units of vitamin C (Sherman-LaMer method) per ounce. It is recommended for use in infant feeding and for convalescent and special diets in which a smooth diet is indicated.

**Jerry's Kew-Bee Redi-Sliced Bread** (Jerry's Bakery Company, Terre Haute, Indiana).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**Dromedary Cranberry Sauce (Strained)** (The Hills Brothers Company, New York).—A cooked, sweetened, sieved cranberry sauce. It is claimed to be a cranberry sauce of good quality.—*Journal of the American Medical Association*, October 3, 1931, p. 1002.

**Similac** (M & R Dietetic Laboratories, Inc., Columbus, Ohio).—A spray-dried reconstructed diet for infants deprived of breast milk; containing sodium, potassium, and calcium caseinates, lactalbumin, milk sugar, salts, and animal and vegetable fats (butter fat, olive oil, coconut oil, cod liver oil). Similac may be fed either as a complement or as a supplement to breast milk or as a diet where breast milk is entirely absent. It is claimed that the modification of the salts of skimmed milk used in the preparation and manufacture of Similac produces a change in the casein of milk which results in the Similac coagulat-



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**Swift's Pure Tomato Juice** (Swift & Company, Packers, Chicago, Illinois).—A pasteurized tomato juice, seasoned with salt. This tomato juice is claimed to be adaptable as an infant food and to be a good source of mineral salts and of vitamins A, B, and C. It is also claimed to be a protective food for babies against scurvy.

**Roth's Bamby Bread** (The A. Roth Baking Company, Inc., Newport, Kentucky).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.—*Journal of the American Medical Association*, October 17, 1931, p. 1150.

**Dromedary Fresh Keeping Coconut** (The Hills Brothers Company, New York).—A moist, shredded coconut mixed with sucrose, glycerin, and salt. It is claimed to be a coconut food of good quality.

**Pabst-Ett** (Pabst Corporation, Milwaukee Wis.). A "process American cheese" containing disodium and trisodium phosphates as emulsifiers, with added salt, whole milk, and concentrated milk whey. The product is claimed to contain approximately 280 Sherman vitamin A units per ounce, 46 Sherman-Spohn vitamin B (complex) units per ounce, and determinable amounts of vitamin D. It is recommended for all the uses of ordinary cheese.

**Kellogg's Corn Flakes** (Kellogg Company), Battle Creek, Michigan).—A cooked and toasted corn flakes cereal flavored with malt extract, sugar, and salt. This product is claimed to be a good quality corn flakes, easily digested, and to supply the body with heat and energy.

**Swan's Sliced Bread** (Swan Brothers, Inc., Knoxville, Tennessee).—A white bread made by the sponge

(Continued on Page 23)

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## WINTER SALAD (Six Servings)

|                                          | Grams      | Prot.      | Fat       | Carb.       | Cal. |
|------------------------------------------|------------|------------|-----------|-------------|------|
| 2 teaspoons Knox Sparkling Gelatine..... | 4.5        | 4          | ..        | ..          | ..   |
| ¼ cup cold water.....                    | ..         | ..         | ..        | ..          | ..   |
| ½ cup hot water.....                     | ..         | ..         | ..        | ..          | ..   |
| ½ teaspoon salt.....                     | ..         | ..         | ..        | ..          | ..   |
| ¼ cup vinegar.....                       | ..         | ..         | ..        | ..          | ..   |
| 1½ cups grated cheese...                 | 150        | 43         | 54        | ..          | ..   |
| ½ cup chopped stuffed olives.....        | 70         | 1          | 19        | 8           | ..   |
| ½ cup chopped celery...                  | 60         | 1          | ..        | 2           | ..   |
| ¼ cup chopped green pepper.....          | 25         | ..         | ..        | 1           | ..   |
| ⅓ cup cream, whipped...                  | 75         | 2          | 30        | 2           | ..   |
| <b>Total</b>                             | <b>51</b>  | <b>103</b> | <b>13</b> | <b>1183</b> |      |
| <b>One serving</b>                       | <b>8.5</b> | <b>17</b>  | <b>2</b>  | <b>197</b>  |      |

Soak gelatine in cold water. Bring hot water and salt to boil and dissolve gelatine in it. Add vinegar and set aside to chill. When nearly set, beat until frothy, fold in cheese, olives, celery, pepper and whipped cream. Turn into molds and chill until firm. Unmold on lettuce leaf and serve.

## SPANISH CREAM (Six Servings)

|                                           | Grams     | Prot.       | Fat       | Carb.        | Cal. |
|-------------------------------------------|-----------|-------------|-----------|--------------|------|
| 1 tablespoon Knox Sparkling Gelatine..... | 7         | 6           | ..        | ..           | ..   |
| ¼ cup cold water.....                     | ..        | ..          | ..        | ..           | ..   |
| 1 cup milk.....                           | 240       | 7           | 10        | 12           | ..   |
| ¾ cup boiling water.....                  | ..        | ..          | ..        | ..           | ..   |
| 2 eggs.....                               | 100       | 13          | 10.5      | ..           | ..   |
| 1½ teaspoons vanilla.....                 | ..        | ..          | ..        | ..           | ..   |
| Few grains salt.....                      | ..        | ..          | ..        | ..           | ..   |
| <b>Total</b>                              | <b>26</b> | <b>20.5</b> | <b>12</b> | <b>336.5</b> |      |
| <b>One serving</b>                        | <b>4</b>  | <b>3</b>    | <b>2</b>  | <b>56</b>    |      |

Soak gelatine in cold water five minutes. Heat water and milk over boiling water, add gelatine and stir until dissolved. Separate eggs and beat yolks until lemon colored. Stir gelatine mixture slowly into egg yolks. Return to stove and cook over boiling water until mixture begins to thicken. Remove from stove, add vanilla and salt and chill. Beat egg whites until stiff and fold into jelly when almost set. Mold and chill until firm.

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### TRUTH ABOUT MEDICINES

(Continued from Page 21)

dough method. It is claimed to be a bread of good quality.—*Journal of the American Medical Association*, October 24, 1931, p. 1227.

Mead's Dextri-Maltose No. 1 With Sodium Chloride Two Per Cent (Mead Johnson & Company, Evansville, Indiana).—Essentially a mixture of maltose and dextrins with two per cent added sodium chlorid. Mead's Dextri-Maltose No. 1 With Sodium Chloride Two Per cent is recommended for use as a carbohydrate supplement in the general diet of infants and is especially adapted to meet the carbohydrate requirements of infants and invalids. It is used in milk modifications suitable for children or adult invalids.

Mead's Dextri-Maltose No. 2 (Mead Johnson & Company, Evansville, Indiana).—Essentially a mixture of maltose and dextrins. This product is claimed  
(Continued on Page 25)



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## TRUTH ABOUT MEDICINES

(Continued from Page 23)

to be especially prepared for use as a carbohydrate supplement in general infant feeding and as a valuable ingredient in the diet of adult invalids; it is used where the addition of salt is not required.

**Mead's Dextri-Maltose No. 3 With Potassium Bicarbonate Three Per cent** (Mead Johnson & Company, Evansville, Indiana).—Essentially a mixture of maltose and dextrins with three per cent added potassium bicarbonate. Mead's Dextri-Maltose No. 3 With Potassium Bicarbonate Three Per Cent is recommended for use as a carbohydrate supplement in special infant diets and other special diet mixtures for meeting carbohydrate requirements. It is used in milk modifications suitable for children or adult invalids.

**Crosby's Best Flour** (Associate Companies of General Mills, Inc., Minneapolis, Minnesota).—A hard winter wheat patent flour designed for commercial bakers' use; packed in sacks. It is claimed to be a good quality hard winter wheat patent flour designed to meet the requirements of the baking industry for an economical bread flour.

**Borcherdt's Malt Sugar** (Borcherdt Malt Extract Company, Chicago).—The product is essentially maltose (87 per cent) obtained by conversion of starch by malt diastase, contains dextrins, proteins, mineral salts, and vitamins B and G. The product is recommended for infant feeding and is claimed to contain vitamins B and G in substantial quantities.

**Pabst-Ett (Brick Variety)** (Pabst Corporation, Milwaukee, Wisconsin).—A blend of process brick and process American cheese containing disodium and tri-

(Continued on Next Page)

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## **TRUTH ABOUT MEDICINES**

(Continued from Previous Page)

sodium phosphates as emulsifiers, salt and concentrated milk whey. The product is claimed to contain approximately 280 Sherman vitamin A units per ounce, 46 Sherman-Spohn vitamin B (complex) units per ounce, and determinable amounts of vitamin D. It is recommended for all the uses of ordinary cheese.

**Laub's Quality Bread** (The Jacob Laub Baking Company, Cleveland, Ohio).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**Whole Wheat Flakes — Wheaties — With All the Bran** (Gold Medal Foods, Inc., a Wholly Owned Subsidiary of General Mills, Inc., Minneapolis, Minn.).

Toasted whole wheat flakes prepared from cooked wheat with added sucrose, salt, and malt syrup. The product is claimed to be a good quality cooked and toasted whole wheat flakes.

**Merrell-Soule Powdered Lemon Juice and Corn Syrup** (Borden Sales Company, Inc., New York).—A spray-dried mixture of lemon juice and corn syrup. It is claimed to be a good quality powdered lemon juice with corn syrup recommended for the preparation of lemon pies, beverages, and other lemon food preparations.—*Journal of the American Medical Association*, October 31, 1931, p. 1302.

## **PROPAGANDA FOR REFORM**

**Pantopon (Roche) Omitted From New and Non-official Remedies.**—Pantopon (Roche) (Pantopium Hy-  
(Continued on Page 29)



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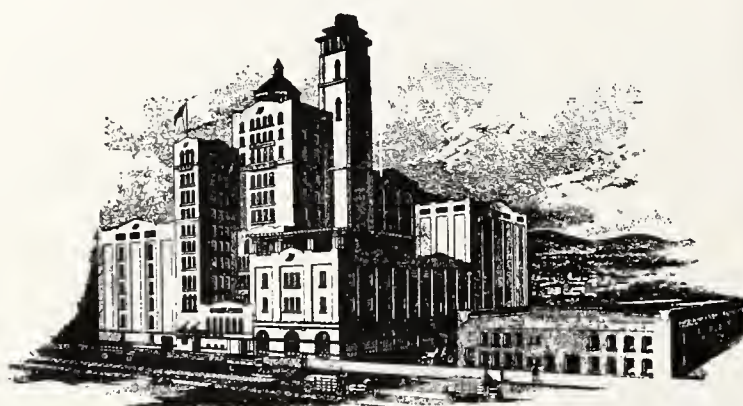
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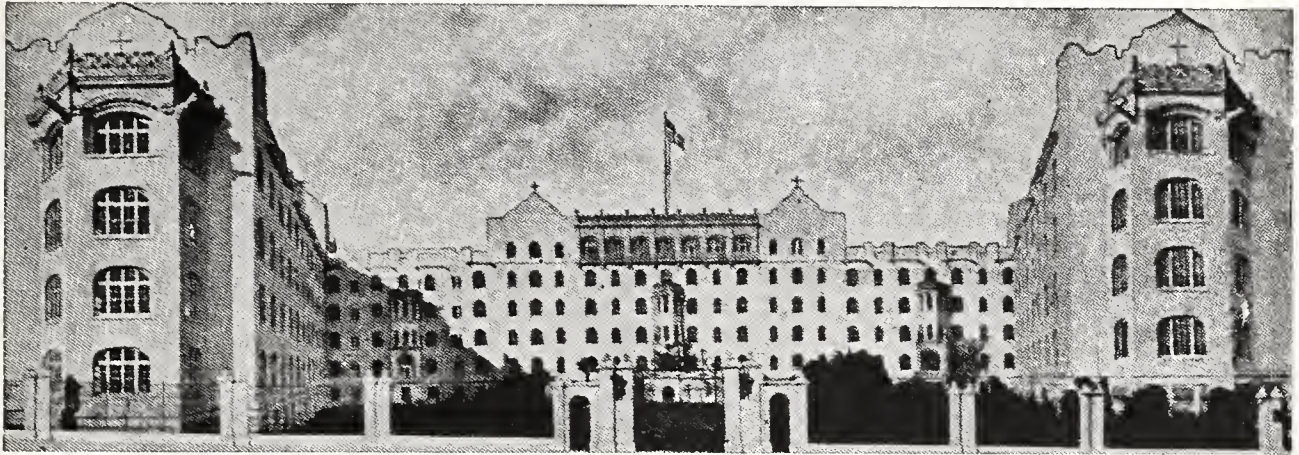


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## TRUTH ABOUT MEDICINES

(Continued from Page 26)

drochloricum), marketed by Hoffmann-LaRoche, Inc., is a mixture of the hydrochlorids of the alkaloids of opium containing 50 per cent of anhydrous morphin hydrochlorid. The Council on Pharmacy and Chemistry reports that it was accepted for New and Non-official Remedies in 1915 and that, in accepting the product and repeatedly thereafter, the Council has insisted that the firm avoid in its advertising any claim that Pantopon (Roche) is possessed of essential properties lacking in morphin. The Council was obliged, however, to remind the firm that its advertising should not contain this claim either directly or by inference; and the firm repeatedly signified willingness to abide by this condition. Recently a circular letter of Hoffmann-La Roche, Inc., was forwarded to the Council by a physician. The intent of this letter to indicate that the action of Pantopon (Roche) is essentially different from that of morphin was plain. Furthermore, the letter failed to apprise the physician of the identity of the product, namely, that it is a mixture of the hydrochlorids of opium alkaloids. The Council concluded that Hoffmann-LaRoche, Inc., could not be depended on to market Pantopon (Roche) with claims which make it acceptable for New and Nonofficial Remedies and, therefore, rescinded the acceptance of the product.—*Journal of the American Medical Association*, October 3, 1931, p. 1001.

**Pernocton Not Acceptable for New and Nonofficial Remedies.**—Pernocton, stated to be a 10 per cent solution of the sodium salt of the secondary butyl-beta-bromallyl barbituric acid, was submitted to the Council on Pharmacy and Chemistry by Riedel-de Haen, Inc. The product is proposed for intravenous injection for production of "Pernocton sleep." Since the name is therapeutically suggestive, the firm proposed to replace it with "Pernoston" and requested

consideration of the product under the latter name; however, advertising as late as May, 1931, still bears the name Pernocton. The Council on Pharmacy and Chemistry declared the name Pernocton therapeutically suggestive and held the product, whether marketed as Pernocton or Pernoston, unacceptable for New and Nonofficial Remedies for lack of critical evidence that routine intravenous injection of potent narcotics is desirable or safe.—*Journal of the American Medical Association*, October 3, 1931, p. 1001.

**The American Medical Association Chemical Laboratory.**—The American Medical Association Chemical Laboratory cannot analyze specimens for individuals. (1) The chemical work undertaken by the laboratory must be of *general* interest to physicians. (2) The laboratory is busily engaged in the work for which it was founded, namely, investigations of the newer remedies for the Council on Pharmacy and Chemistry. (3) The laboratory undertakes examination only of products in original containers, bearing original labels and the source of which can be vouched for in case of possible court action. (4) The present laboratory would need much enlargement and a far larger staff to examine specimens for all of the one hundred thousand physicians it is designed to serve.—*Journal of the American Medical Association*, October 3, 1931, p. 1001.

**Foods and Food Advertising.**—Today, advertising of foods, separate from the package container, is not controlled by any food statutes, and indeed is quite free of any efficient control. The writer of advertising of food products, aside from such limited knowledge of foods and nutrition as he may possess, has only a versatile vocabulary and his conscience as guides in dramatizing the virtues of the products he proclaims to the public. Under these conditions, advertising for food products began to approach the tales of Hans Christian Andersen and the brothers Grimm. Into this mass of mingled truth and decep-

(Continued on Page 31)



## "Loose Talk"

There has been much commendable criticism, of late, in professional publications and elsewhere, of "loose talk" by physicians and dentists as a principal cause of the marked increase in malpractice litigation — particularly where the "mass-selling" plan of professional protection has been called to account.

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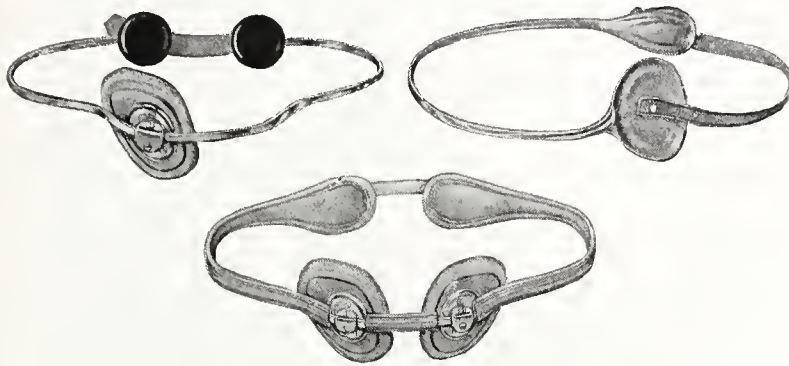
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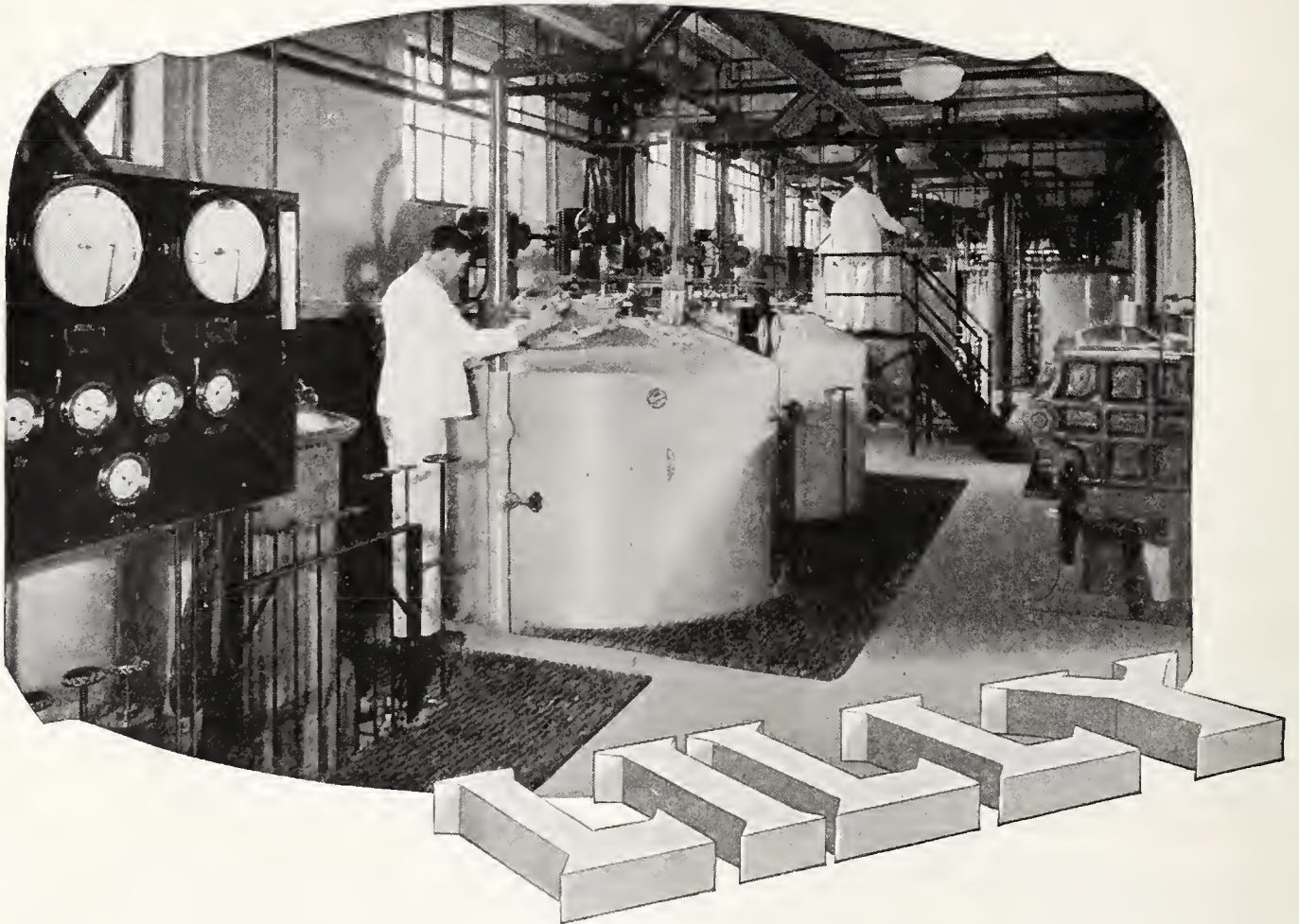
### TRUTH ABOUT MEDICINES

(Continued from Page 29)

tion entered the Committee on Foods of the American Medical Association. It is not surprising that its initial steps should have been greeted with apprehension and bitter deprecation by some of the organs of the food industry, of business, and of advertising.

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(Continued on Page 34)



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PROGRESS THROUGH RESEARCH



# CALIFORNIA AND WESTERN MEDICINE

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No. 6

## OBSERVATIONS ON BACILLUS TYPHOSUS IN ITS FILTERABLE STATE\*

A PRELIMINARY COMMUNICATION

By ARTHUR ISAAC KENDALL, PH.D.  
*Chicago, Illinois*

AND

ROYAL RAYMOND RIFE, PH.D.  
*San Diego, California*

IT seems improbable that viable bacteria in the filterable state have ever been unequivocally seen. Nevertheless, the theoretical and practical importance of filterable forms of bacteria in theoretical and applied biology cannot be denied.

Recently, through the simultaneous availability of the Rife microscope, an instrument combining very high magnification with coordinated resolving power, and a simple procedure for inducing the filterable state in bacteria at will,<sup>1</sup> the possibility of actually demonstrating organisms in this hitherto illusive condition very obviously presented itself.

Two features of the Rife microscope, full details of which will be presented elsewhere, must be specifically mentioned here. First, the entire optical system, including not only the lenses but also the illuminating unit, is made of quartz. In addition, a double wedge quartz prism is mounted between the illuminating unit and the quartz Abbé condenser. The latter can be rotated, with vernier control, through 360 degrees, thereby affording readily controllable polarized light at any required angle. The import of this polarization unit will be discussed later. Inasmuch as this microscope magnifies from 5,000 to 17,000 diameters, it is obviously very necessary to have it mounted upon an immovable foundation.

The organism selected for these experiments was the well known Rawlings strain of *B. typhosus*. The immediate history of the culture used is as follows:

October 29, 1931. An agar slant was made of a thrice-plated culture of *B. typhosus*, Rawlings strain. (Editor's Note: This agar slant was made in the Laboratory of Research Bacteriology,

Northwestern University Medical School, Chicago, Illinois.)

November 2, 4 p. m. Inoculated six cubic centimeters of K (protein) Medium<sup>2</sup> from the agar slant culture.

November 3, 10 a. m. Filtered this culture in K Medium of November 2, through a Berkefeld "N" filter. (The culture was diluted with four volumes of sterile physiological saline solution; the vacuum used was less than four inches of water; the total time of filtration was less than ten minutes.)

November 3. One drop of filtrate, representing one-fifth drop of the original culture, was introduced into six cubic centimeters of K Medium. Incubated at 37 degrees centigrade. The filtrate was also tested for purity as follows: (1) cultural reactions; (2) sugar fermentation reactions; (3) agglutination with specific typhoid serum. All were typical.

November 5. The forty-eight-hour culture of November 3 in K Medium was filtered, as above, through a Berkefeld "N" filter. One drop of the filtrate was added to six cubic centimeters of K Medium and incubated at 37 degrees centigrade.

November 6. The twenty-four-hour culture of November 5, which grew well, was again filtered. This time the finest Berkefeld filter, "W," was used. As before, a drop of this filtrate was added to six cubic centimeters of K Medium and incubated at 37 degrees centigrade. Growth was abundant November 7.

November 9. The culture was again transferred to K Medium.

November 12. Still another culture was made, in every instance using three loops of culture for the inoculum.

It is worthy of note that this thrice filtered culture of *B. typhosus* grew quite readily in K Medium as above outlined: after the second filtration it failed to grow in peptone broth. In other words, the organism having become filterable and accustomed to protein media (proteophilic) lost its ability to grow in ordinary peptone containing nutrient broth.

The cultures of November 9 and November 12 were examined under the microscope and there were no discernible bacilli, although the cultures were markedly turbid. Darkfield illumination revealed very small, actively motile granules, and direct observation of these with the oil immersion lens confirmed the presence of these motile granules, without, however, affording any indica-

\* From:

The Rife Research Laboratory, San Diego, California;  
The Laboratory of Research Bacteriology, Northwestern University Medical School, Chicago, Illinois; and  
The Pathological Laboratory of the Pasadena Hospital, Pasadena, California.

<sup>1</sup> Presented at a meeting of the Bacteriological Section of the Los Angeles Clinical and Pathological Society, November 20, 1931.



Fig. 1.—Photograph of the microscope and its inventor, Royal Raymond Rife, Ph. D. In the illustration the source of illumination is to the extreme left, the light passing through the substation condenser and then through the optical system. The vertical tube is the observation tube. The three lenses are directed toward the camera. The camera is a special stop motion camera for standard films. Beyond the camera is the motor to drive it. The stage on which the instrument is placed is so arranged that the microscope can be tilted through any axis from horizontal to vertical.

tion of their structure. Therefore, these granules for obvious reasons could not be unequivocally diagnosed as the filterable form of the bacillus.

In this viable, filtered state the culture was taken to Pasadena, California, and, through the instrumentality of Dr. Milbank Johnson, the co-operation of Dr. Alvin G. Foord, and the courtesy of the Pasadena Hospital, the necessary space and equipment for mounting the microscope and continuing the cultures were made available. The subsequent developments, which are the immediate subject of this discussion, are as follows:

November 16. The cultures of November 12, made in Chicago, were transferred to fresh K Medium and incubated at 37 degrees centigrade overnight.

November 17. The Rife microscope was installed and the first cultures, those inoculated November 16, were examined. The preliminary observations of these cultures were made with a polarizing microscope with a spectroscopic attachment. It should be borne in mind that the entire optical system of this micropolarimeter was of quartz. A one-eighteenth-inch apochromatic oil immersion lens was used, with a 20x quartz ocular.

When a culture of *B. typhosus* in the filterable state, grown as above indicated in K Medium,

was examined with this micropolarimeter, it was observed that the plane of polarization of the light passing through the culture was deviated plus 4.8 degrees, with the simultaneous appearance of a definite blue spectrum. With this observation in mind, the culture was next studied with the Rife microscope at 5000 diameters.

The double wedge quartz prism referred to above was set by means of the vernier to minus 4.8 degrees.\* Examined in this polarized light, this thrice filtered culture of *B. typhosus* cultivated in K (protein) Medium showed small, oval granules, many of them quite actively motile. These motile granules when in *true focus* appeared as bright turquoise-blue bodies, which contrast strikingly, both in color and in their active motion, with the noncolored, nonmotile debris of the medium.

These observations were repeated eight times, using in each instance growth of the filterable organisms in K Medium. The cultures examined were both twenty-four and forty-eight hours old. The qualitative results were always the same, namely, the occurrence of small, oval, actively motile, turquoise-blue bodies in the cultures and the absence of these small, oval, actively motile,

\* The reason for setting the quartz wedge in the reverse direction will be discussed in another place.





Fig. 2.—Arthur Isaac Kendall, Ph. D., Director of Medical Research, Northwestern University Medical School, co-author with Royal Raymond Rife, Ph. D., of the paper on "Observations on *Bacillus Typhosus* in Its Filterable State."

turquoise-blue bodies in the uninoculated control K Media.

From the two facts thus far arrived at, namely, that the small, oval, turquoise-blue bodies were actively motile and also that they were cultivable from K Medium to K Medium, it is surmised that these small, oval, motile, turquoise-blue bodies are indeed the filterable forms of the *B. typhosus*.

There is another even more direct procedure for establishing the identity of these small, oval, motile, turquoise-blue bodies. It has been shown in previous communications<sup>3</sup> that agar cultures, or better, broth cultures of *B. typhosus* inoculated into K Medium, become filterable within eighteen hours' growth at 37 degrees centigrade. It should follow, inasmuch as not all of the bacilli appear to become filterable under these conditions, that at least some of the bacilli should have similar turquoise-blue granules within their substance if they are indeed passing to the filterable state. Also the free swimming filterable forms, the small, oval, motile, turquoise-blue bodies described above, should be simultaneously present.

Darkfield examination of such a culture eighteen hours old revealed unchanged, actively motile bacilli, bacilli with granules within their substance, and free swimming, actively motile granules. This culture examined in the Rife microscope with the quartz prism set at minus 4.8 degrees and with 5000 diameters magnification, showed very clearly the three types of organisms just described, namely:

First, unchanged bacilli: These were relatively long, actively motile, and almost devoid of color.

Second, long, actively motile bacilli, each with a rather prominent granule at one end. The granule in such an organism was turquoise blue, reminiscent in size, shape, and color of the small, oval, actively motile, turquoise-blue granules found in the protein medium (K Medium) where, it will be recalled, no formed (rod shaped) bacteria could be demonstrated. These bacilli having the turquoise-blue granules were colored only at the granule end, the remainder of the rod being nearly colorless, in this respect corresponding to the unchanged (nonfilterable) bacilli just mentioned.

Third, free swimming, small, oval, actively motile, turquoise-blue granules, precisely similar, apparently, in size, shape, and color to those seen in the granulated bacilli just described.

/ / /

From the fact that these small, oval, turquoise-blue bodies could be seen both in the parent rod and free swimming in the medium, it is assumed that these small, oval, actively motile, turquoise-blue bodies are indeed the filterable form of *B. typhosus*.

Laboratory of Medical Research, Northwestern University Medical School, 303 Chicago Avenue, Chicago, Illinois.

Rife Research Laboratory, 712 Electric Building, San Diego.

#### REFERENCES

1. James A. Patten Lecture, Northwestern University Bulletin, Vol. 32, No. 5 (September 28), 1931.
2. Northwestern University Medical School Bulletin, Vol. 32, No. 8, (October 19), 1931, for full details.
3. Op. cit.

## TESTICULAR SUBSTANCE IMPLANTATION\*

### COMMENTS ON SOME SIX THOUSAND IMPLANTATIONS

By LEO L. STANLEY, M. D.  
San Quentin

DISCUSSION by Jau Don Ball, M.D., San Francisco;  
Ralph A. Reynolds, M. D., San Francisco; H. Lisser,  
M. D., San Francisco.

RESEARCH relative to the transplantation of testes and implantation of testicular substance was begun at the California State Prison at San Quentin in 1918. It is now twelve years since this work was started. Approximately four thousand persons have been observed and have had administered to them some form of a gonadal product. It is now time to check up and evaluate, if possible, the results.

#### BROWN-SEQUARD'S OBSERVATIONS

Brown-Sequard, the father of endocrinology, in 1890 published the results obtained by injecting into himself an extract made by grinding in a mortar with water, and filtering, the testes of

\* Read before the General Medicine Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

a young, vigorous dog. He claimed definite dynamic effects. At that time he was seventy-two years old and had many infirmities of old age: feebleness, rheumatism, decreased vigor, constipation, exhaustion, and inability to sleep. Following five injections of the extract he noticed that he tired less easily, regained much of his former strength, felt better physically, and was more alert mentally. "I can say, also, that my other forces—not lost, but decreased—have been remarkably strengthened."

After the publication of Brown-Sequard's findings, many physicians took up the procedure, but with them arose many charlatans and irregular practitioners. These latter played on the sex phase and made ridiculous claims. As a result, the better class of medical men were not impressed, and the matter lay semidormant until about 1912.

#### LYDSTON'S EXPERIMENTS

At this time Lydston conceived the idea of transplanting the testes. He chose himself to be the recipient. He procured the organs from a young man killed by accident. Lydston, like Brown-Sequard, was approaching old age and had some infirmities. His heart muscle was impaired, he tired easily, and he had a keratosis of his foot. After the transplantation these conditions were greatly improved. He was so impressed with the therapeutic value of transplantation of the testes that he wrote a monograph on the subject and published several reports in the medical journals.

#### THE SAN QUENTIN STUDIES

In 1918 the medical department of San Quentin undertook to confirm or disprove some of Lydston's assertions.

At the prison there is an average of three legal executions by hanging each year. Occasionally the bodies are not claimed and are available for postmortem study and research.

The first inmate patient, aged seventy-one, showed such an improvement in general health after the transplantation of a testicle that the operation was performed on twenty more. In none of these cases did the transplant live. It gradually became smaller and later disappeared. No attempt was made to do blood-vessel anastomosis, the organ being cut and sewed to the testicle of the recipient in such a way that the cortex of the two glands were approximated. Grafts of testes later removed and sectioned showed a necrosis of the tissues. Notwithstanding this necrosis, the patients received beneficial effects.

#### TRANSPLANTATION TECHNIQUE

Because of the scarcity of human material, it was determined to use that of rams and goats. In the early work a slice of ram's testicle the size of a silver dollar was placed in the pampiniform plexus. In other patients a similar piece was placed in a pocket made under the skin of the abdomen on either side of the navel.

With all these various techniques it was found that the material gradually absorbed, very seldom with suppuration.

In 1922 the technique was modified and has not been changed since. In this the scrotum of the ram is tied tightly above the testicles immediately after the death of the animal. The bag is then cut away and brought to the hospital. There the wool is clipped off and the skin painted with iodine. Under absolutely sterile conditions in the operating room the scrotum is incised and the testes removed. From these the tunica vaginalis propria is peeled off, leaving the matrix. This matrix is then placed in a small meat chopper and ground to about the consistency of tooth paste. To this is added a small amount of chloretone. This material is then placed in two-dram collapsible metal tubes with screw top. The whole tube is immersed in melted paraffin and placed in the refrigerator.

A metal syringe of two-dram capacity is used for administering this material. The plunger is removed and the contents of the tube squeezed into the breach of the syringe. A needle of 16-gauge and two inches long is attached.

In the meantime the patient is placed on the operating table, his abdomen is cleaned and iodine applied to either side midway between the umbilicus and the anterior superior spine of the ilium. At this same place a few minims of novocain, one-half per cent, is injected into the skin, making a small wheal two centimeters in diameter.

Into this wheal the larger needle is inserted and pushed underneath and parallel to the skin surface for one and one-half inches. The testicular material is then slowly injected as the needle is withdrawn, leaving a small burrow filled with the substance. The needle is turned at right angles and another injection made. In this way there are four burrows radiating from the center like the spokes of a wheel. These testicular substance implantations have been made about six thousand times in four thousand patients.

With this technique of testicular substance implantations there is very seldom any local reaction. The burrows can easily be felt by rubbing the finger over the abdomen. Occasionally redness and swelling develops and in about one per cent of the cases suppuration occurs. This quickly subsides when the site is opened. About ten patients in the whole series developed urticaria, and a like number had an edema of the scrotum and penis. This lasted only a few hours.

The procedure entails very little pain, as the novocain decreases this, and the subcutaneous fat is not highly sensitive.

#### COMMENT

The implantation of the whole testicular substance is considered an advantage over the mere injection of an extract. In fact, it is not definitely known just what part of the testes produces dynamic effects. This energizing part may be in the extract, or it may be in the residue, according to the method of extraction. With the implantation of the whole substance, on the other hand,



the body does its own extracting *in vivo*. It is known that nothing is left out.

When an extract is injected into the body, as adrenalin for instance, the effect is rapid but readily diminishes, for the extract is quickly absorbed. But with the implantation of the whole testicular substance, absorption is slow, and it seems reasonable to suppose that the system takes from the storehouse as a supply is needed. At any rate, the implants may be felt under the skin for weeks, and sometimes months. In other cases, however, it may be quite rapidly absorbed. Usually one treatment every two to three months is considered adequate. In the early work these implantations were given in many different cases regardless of the disease, in order to find out if possible just what conditions might be affected. In these trials it was felt that some patients were helped by this form of therapy.

*Acne Vulgaris*.—In the prison were a number of cases of acne vulgaris in boys and young men. One hundred and forty-eight patients with acne were treated. Ninety-nine of these were benefited in that their faces cleared up and showed marked improvement. Ordinarily this change took place within two months after the treatment.

*Diabetes*.—By accident it was found that in a diabetic patient the urinary sugar output became negative after an implantation of testicular substance.

Twenty-two other diabetics were then treated and it was found that in most of them the urinary sugar disappeared. The patients felt better, gained in weight, and were able to reduce their administration of insulin. From this experience it would appear that this form of therapy was a good adjuvant in the treatment of diabetes.

*Asthma*.—It was noticed that some of the patients who had asthma were benefited in that their attacks were less severe and less frequent. Perhaps no theories should be evolved, but it was felt that perhaps the implanted testicular substance had a stimulating effect on the adrenals in such a way that more adrenalin was sent into the system with a beneficial effect on the asthma.

*Constipation*.—In this connection it may be said that many of the patients reported that the constipation from which they suffered was markedly relieved by the treatment.

It is reasonable to theorize and say that here the increased adrenalin so affected unstriped muscles of the spastic bowels that normal movements took place. This phenomenon was recorded by Brown-Sequard fifty years ago.

*General Asthenia*.—The type of case which seemed to be most benefited was that of general asthenia, a condition where no definite pathology was found, but the patient felt tired, listless, and weary. Some of these symptoms had developed after influenza.

Of 429 men so classified, 370 patients received marked benefit. They gained in weight and activity and had a feeling of euphoria in contrast to their state of depression before.

*Sexual Function*.—Because of sex psychology considerable raillery has been directed toward this research, and because of it quacks and charlatans have arisen and better men have hesitated to accept deductions.

It is felt that in many cases any therapy which will increase one's feeling of well-being and step up his metabolism will at the same time increase his sexual powers. On the other hand, it has been demonstrated that patients with sexual lassitude, and even impotence, have had a return to normal after implantation of testicular substance.

In ten years of experimental work many interesting observations have been made.

In this work the usual technique of research has been reversed. Instead of experimenting with laboratory animals at first and finding out what effect testicular substance might have on them, work was done on human beings primarily and later checked up on animals.

For example: It has been seen that many men had unusual sexual manifestations after the implantation, and many who were sexually debilitated had a restoration of function. At the prison was a 14-year-old dog which had been a favorite with the guards, accompanying them on the night patrol. He gradually weakened from old age, was unable to make his rounds with the guards, and slept most of the time. General senility had set in. This old dog was secretly given an implantation of testicular substance. Within two days a decided change in his actions took place. He left his bed, resumed his walks with the guards, chased sticks, and for a time was greatly excited sexually. He even mounted his guard's leg in sexual embrace, as young dogs occasionally do. Psychology played no part in this.

*Urinary Sugar in Diabetes*.—Testicular substance implantations had the effect of lowering the urinary sugar in many of the diabetic cases. In some cases the sugar disappeared within two weeks without other medication or change of diet. In corroboration of this it was found that goldfish in a 0.1 per cent dextrose solution utilized about 22 per cent of the sugar in thirty hours. If to the same solution 100 milligrams of testicular substance was added, the same fish used 78 per cent of sugar in thirty hours. This would seem to indicate that this substance has some effect on sugar utilization.

*Euphoria*.—From practical experience it has been found that men to whom testicular substance has been administered show greater activity, are quicker in their movements and have a feeling of euphoria.

#### OTHER OBSERVATIONS

*Goldfish Experiments*.—An apparatus was devised to record, on a smoked paper, the movements of goldfish. It was found that the goldfish increased their activity 400 per cent when fed on testicular substance rather than on ground shrimp meat.

Into each of two separate bowls were placed two goldfish. They were weighed each week. To



those in bowl A was fed weekly one-quarter their body weight of ground-up meat. To those in bowl B was fed weekly one-quarter their body weight of ground-up testicular substance. Those fed on the beef gained much more rapidly in weight than did those feeding on testicular substance.

After ten weeks the diet was reversed, "A" getting the gonads, and "B" the meat. Here there was a steep rise in the weights of "B," and a very gradual rise in "A."

Those fish fed on the testicular substance were much more active, continuously swimming about or searching for food, while those fed beef were much less active.

*Frequency of Treatments.*—At the prison, part of one afternoon is devoted to testicular substance implantations. One ram supplies sufficient material for about twenty treatments. There is always a waiting list of fifty to one hundred men anxious for the treatment. This is a fair argument for its effectiveness.

#### CONCLUSIONS

After twelve years of work with this form of therapy it may be said that it has definite dynamic effects, and has palliative qualities in several definite conditions.

San Quentin Prison, San Quentin.

#### DISCUSSION

JAU DON BALL, M. D. (450 Sutter Street, San Francisco).—Doctor Stanley's paper should give an impetus to the search for the principles underlying his observed results of gland implantations in six thousand men in San Quentin prison.

Why testicular substance implants, as administered by Doctor Stanley, indicate certain results in certain physical ailments is not clear.

In my opinion, it will remain for the biochemist working in the field of endocrinology to ultimately answer the "Why" question.

But Doctor Stanley's account of his six thousand testicular gland implantations, stated without any dogmatic claims and with full recognition that the method was empirical, is, nevertheless, a very significant contribution to the study of the glands of internal secretion.

Over a period of about six years I have worked with Doctor Stanley on selected cases outside of prison. In a study of more than two hundred of these extramural cases, male and female, to whom more than four hundred implants of testicular substance were administered, we noted that 60 per cent responded favorably in varying degree.

The disorders included artificial and natural menopause, diabetes, arthritis, asthma, and acne. In addition a number of patients treated were psychiatric cases, suffering from depression, senility, etc.

In all these cases, in addition to the testicular substance implant, other treatments were also used, but I believe it was clearly indicated the implant was a very valuable aid to the other treatment, for in more than half the cases improvement was definitely noted only after the implant was administered or repeated.

Testicular implant, in my opinion, is not a rejuvenator, and Doctor Stanley does not make such a claim for it. Although we do not yet know "why," it does frequently stimulate metabolism, increase the general activity of the patient, give him a feeling of well-being, and in certain of the above-mentioned disorders improve and sometimes apparently clear up the condition.

RALPH A. REYNOLDS, M. D. (490 Post Street, San Francisco).—I wish to comment briefly regarding two phases of Doctor Stanley's work which it has been my privilege to observe during the past year and a half.

Doctor Stanley refers to the effect of testicular injections on the disappearance of acne. It is a well known fact that acne most commonly makes its appearance during the adolescent stage—from fifteen to twenty years—or during the period when the growth hormones are most active. Confronted, as Doctor Stanley was, with severe cases of acne vulgaris, usually in young men, it occurred to him that there might be a decrease in the hormone of one or more glands concerned with growth. Quite frankly, as he states, he empirically gave whole gland testicular substance to several of the most severe cases and found that most of them improved after the first injection, and many cleared up entirely after repeated injections. With Doctor Stanley's collaboration, I attempted to analyze these cases in order to determine whether or not there is any scientific explanation for his results. The age in the cases analyzed ranged from eighteen to twenty-five years. Most of the patients were tall and slender, and gave the general appearance of adolescent youths. About 70 per cent of them had no body hair, had light beards, and had skin of fine texture; in other words, they gave evidence of delayed development of adult characteristics. Long bone measurements were made of each member of this group. We know that in the case of the adult with normal development we can expect to find the arm spread equaling the height, while the distance from the pubis to the floor is about one-half the height. In the group examined it was found that four out of five revealed measurements showing the long bones to have developed in greater proportion than the rest of the body—that is, the arm spread exceeded the height, and the distance from the pubis to the floor more than equaled half the height of the body. This is generally looked upon as indicating a deficiency in testicular secretion. This, perhaps, partly at least, may explain Doctor Stanley's results in the treatment of acne in these cases. Certainly his work gives us a valuable clue in a more comprehensive approach to this dermatologic problem.

Doctor Stanley has referred to certain results in the lowering of blood sugar in diabetics following the injection of testicular extract. It is by no means easy to find any satisfactory explanation as to why testicular injections will lower blood sugar in diabetes, but that this is the case there can be no doubt. I have attempted to analyze twenty of these cases and have found that in severe cases (that is, blood sugars from 250 to 400 and requiring from forty to fifty units of insulin daily) five to six testicular injections are followed by a decrease in the blood sugar from one-third to one-half, the insulin requirement decreasing proportionately. In the less severe cases, blood sugar dropped to 130-150, the urine became sugar free, and insulin could be completely discontinued. About 75 per cent of these patients gave a history of obesity as existing before the onset of diabetes, indicating a general disturbance in growth and metabolism.

If we were correct in assuming that testicular extract stimulated the pancreas to greater insulin production, then in cases of renal diabetes with low blood sugar and fainting attacks we should expect to find the symptoms aggravated by testicular injections. This was found to be true in one case of renal diabetes carefully observed. This patient entered the prison in May 1929 with complaint of thirst, polyuria and fainting attacks, a blood sugar of from 60 to 80 milligrams, and sugar in the urine. He was given during the next year and a half ten testicular injections, with the result that he had more frequent attacks of dizziness, fainting, and weakness. He finally entered the hospital in November 1930 with a blood sugar of 60 milligrams. The gland injections



were discontinued six months ago and the patient was allowed to return to work. The last blood sugar, in March 1931, was 87 milligrams, and the symptoms of fainting and dizziness were much improved.

I do not pretend to know by what mechanism the testicular extract exerts its influence on these two conditions, but that there are certain objective effects, there can be no doubt.

✽

H. LISSER, M. D. (384 Post Street, San Francisco). Doctor Stanley has presented his clinical observations concisely and has spared his readers speculative embellishment. For this he deserves credit; and also for devising a relatively simple procedure for implanting testicular material without the necessity of hospitalization.

Indeed it may be granted that Doctor Stanley's method of implanting whole unextracted ram's testicular substance constitutes, up to the present, the only means of obtaining any clinical benefit from administering male gonadal material. Commercial testicular extracts are notoriously inert.

However, it is to be hoped that several researches, which are being prosecuted in various parts of the world, will ere long prove successful in providing the profession with a proper potent extract, comparable to such standardized preparations as thyroid, insulin, parathormone, pituitrin, adrenalin, and theelin. Moore and Gallagher of Chicago have isolated a potent product, but as yet an embarrassingly huge amount of material is required for a still more embarrassing "yield." The same difficulties confront Hartman and Swingle, each of whom have obtained an unquestionably potent hormone from the adrenal cortex, but in such tiny amounts that it costs \$3000 to treat one case of Addison's disease for one year.

But even when this desired male sex hormone becomes available, its clinical indications will remain to be determined. It may have a wide, vague range of usefulness as a sort of tonic, as seems suggested by Doctor Stanley's experience, but whether we will be able to diagnose specific states of male hypogonadism is not as certain as one might anticipate. The characteristics of both pre- and postadolescent castrates (eunuchs) have been abundantly recorded, more particularly in the classical studies of Tandler and Gross. Likewise deficiency signs and symptoms have been described under the caption "Eunuchoidism," initially by Duckworth and Griffith, but examples of these indubitable syndromes are relatively rare, and specific male gonad substitution therapy has been signally ineffective.

Furthermore, although it is hazardous to indulge in predictions, it is altogether likely that those who will seize upon a truly potent male sex hormone as a cure for impotency will be doomed to disappointment, for the following reasons: the vast majority of such cases are of psychic origin, a few are due to urological disease, and remarkably few indeed to endocrine deficiency. And it is rather startling and disconcerting that some incontestable cases of male castrates are on record who, nevertheless, were still possessed of potential coeundi.

Doctor Stanley's observations on the improvement noted from testicular implantations in such conditions as acne, diabetes, asthma, and constipation are certainly interesting and worthy of record, but will hardly supplant the recognized therapy for these ailments.

Perhaps we may hope that future discoveries will enable us to recognize mild cases of male hypogonadism which will respond to a potent testicular hormone, just as mild cases of hypothyroidism are now benefited by thyroid substance, but it must be granted that nature has been very generous in providing two testicles, and that a little of one seems to suffice ordinarily.

## FIBROIDS AND OVARIAN CYSTS COMPLICATING PREGNANCY\*

By FRANK W. LYNCH, M. D.  
San Francisco

DISCUSSION by Edward N. Ewer, M. D., Oakland; John W. Sherrick, M. D., Oakland; Frank C. Ainley, M. D., Los Angeles.

PREGNANCY may complicate the treatment of tumors, and tumors may complicate the treatment of pregnancy. Evidence of these facts is suggested by the following list of cases in my service at the University of California, and exclusive of consultation: two pregnancies with cancer of the uterine cervix, one with cancer of the labia, four with cancer of the breast, one with primary cancer of the lung, two with carcinoma of the appendix, one with endothelioma of the pharynx, two with brain tumors, one with tumor of the spinal cord, two with tumors of the bladder, one with sarcoma of the thigh, many with tumors of the thyroid, forty with uterine myofibroma, and eight with ovarian cysts. The only tumors which seemed lacking at first sight were bony tumors of the true pelvis of which we have examples only in nonpregnant women.

Our interest in this paper centers in fibroids and in ovarian cysts.

### FIBROMYOMATA

These tumors are often seen with pregnancies. For the most part they are of trivial size and of little clinical importance. Rarely, however, they may constitute a serious threat to the patient's safety in event the tumor is large and undergoes degenerations which demand attention in pregnancy or if it blocks labor as in the rare cases in which the tumor lies in the bony pelvis.

In earlier times fibroids sometimes complicated labor in a terrible manner, largely because surgery was practically interdicted. No matter what the present-day physician does in the way of manipulation, his result cannot be worse than was uniformly obtained by the cesarean operation in earlier time.

Now the conditions of former times no longer obtain. Fibroids of large size are rarely seen in pregnancy. Surgeons remove them while they are quite small and rarely in pregnancy. Moreover, they usually perform hysterectomy. Cervical fibroids are known to be rare, possibly only five per cent of all cases, and yet they constitute the bulk of fibroids which jam in the pelvis. Surgery, moreover, now offers us the possibility of removing fairly safely the offending tumor during pregnancy, or the child at term with or without the tumor or the uterus in event the woman has come to term and the fibroid threatens a blocked labor. Fairly safely, I say, in comparison with the mortality of former days, since even at

\* From the Woman's Clinic, University of California Hospital, San Francisco.

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the present time there is more risk from such operations on pregnant women than from much more major abdominal surgery performed on nonpregnant women. For these reasons the subject is again worthy of discussion at important medical meetings.

The whole field, however, is too large for casual review. Nor is review necessary since the basic facts concerning fibroids and pregnancy are now well known, thanks to several critical and exhaustive reviews of the literature, which represent, however, many phases in the development of modern gynecology.

Granting that the fibroids now seen during pregnancy are usually of small size and of trivial importance, the fact remains that women with larger fibroids occasionally become pregnant and they then may present definite problems regarding proper management. What advice shall we give a patient who greatly desires children and who comes to us two or three months pregnant with a fibroid mass as large as the pregnancy? Much, of course, depends upon the location of the tumor, but unless it is cervical there may be no more difficult question to answer. Four courses are open: (1) to perform a hysterectomy; (2) to abort the patient and remove the tumor subsequently; (3) to attempt a myomectomy with or without removing the fetus; or (4) to allow the woman to progress in her pregnancy and meet emergencies if they arise.

1. I believe that most such cases are treated by hysterectomy although it would appear that it is not always necessary so to do. The general surgeon interprets the tumor as undoubted evidence that the woman not only cannot go to term, but is most likely to undergo some tremendous catastrophe if she attempts to do so. This belief is abundantly confirmed by reviews of the literature. Nearly half of the cases in Carsten's large series of fibroids and pregnancy had had hysterectomy in very early pregnancy, often before the condition of pregnancy was diagnosed. That fact, however, did not prevent the cases from being adduced as evidence of the tremendous complication of fibroids which are associated with pregnancy. Many patients who understand the true condition will take the comparatively small risk of going to term to have what may be an only child.

2. The Gordian knot cannot be cut by performing abortion alone because this operation may be most difficult and because the danger by no means disappears after removal of the ovum. Fibroids in the puerperium may be as dangerous as in pregnancy or labor. They often slough and become infected and sometimes life is saved only by hysterectomy. Abortion, I believe, is warranted as a rule only if it is followed by myomectomy. The operation, then, may well be entirely abdominal, although it is very likely to wind up as a hysterectomy.

Fibroids may disappear almost completely after the pregnancy they have complicated has terminated, only to reappear and complicate subsequent

pregnancies. This is one of the many reasons for performing myomectomy after the patient has been aborted.

3. The question of myomectomy during pregnancy has become a live subject again. Its advocates have increased in number and have reported many successful cases. There is no doubt concerning the necessity of removing large pedunculated growths early. They jam in the pelvis, may undergo torsion and present extensive degeneration, in event the pregnancy continues. The point for discussion is the rationale of myomectomy in tumors embedded in the uterine wall.

Myomectomy under such conditions has always appeared a surgical curiosity with a very narrow field for its possibility. Its indication is pain from degenerations which is not improved by rest. The operation is least likely to be followed by abortion if done about the fifth month of pregnancy. Fundal fibroids usually grow most rapidly until the fourth month and more slowly thereafter for which reason the most extensive degenerations occur about the middle of pregnancy. Kosmak believes that if fibroids cause symptoms during pregnancy, including pain and tenderness, slight elevation of temperature, and perhaps bleeding, that we should in all cases attempt a myomectomy. After the abdomen is open and the true conditions are determined, one can terminate the pregnancy if necessary. This course, however, will give to many the possibility of future pregnancy.

This may be good practice for the most expert surgeons, but, personally, I would far rather let the case rest with nature, with a greater chance, I believe, of less mortality and marked morbidity. Occasionally the surgeon may cut down so far as to expose the sac in which the fetus is lying without interrupting the pregnancy, yet this happy sequence is not so common that it can confidently be expected. While a firm advocate of myomectomy in selected nonpregnant cases, I fear it during pregnancy because it carries an unduly high mortality.

Much of the very considerable mortality and morbidity of both cesarean section and myomectomy is due primarily to the fact that the hypertrophied uterine musculature is not good material for surgery. The incised tissue has already started involuting by the time you start its closure. If the cut margins are not loose enough to almost fall together before suturing, pressure of the sutures may break down the involuting uterine muscle and greatly retard or even prevent good healing.

Secondly, one cannot secure good hemostasis in either the myomectomy or cesarean wound. In ordinary muscle repair the surgeon ties off all bleeding points, a procedure which is often impossible in both cesareans and myomectomies. In these latter operations hemostasis is obtained by strangulating the bleeding points with continuous sutures, a practice which is not idealistic surgery. For these reasons the closure has raw surfaces so that marked adhesions seem a necessary sequence of myomectomy. Moreover, I feel certain



that the importance of pelvic adhesions has not yet made an adequate impression on gynecologists. There is also the question as to whether the stitches will hold if the woman goes immediately into labor.

There are many other reasons why myomectomy, at least in general hands, should not be attempted as a routine during pregnancy. The operation is usually incomplete in that it rarely removes all tumors. Moreover, it is so time-consuming that the prolonged anesthetic may readily precipitate a toxemia. Very often when the abdomen is opened we find many more tumors present than we had formerly suspected, in which event myectomy seems futile and we are most likely to perform hysterectomy.

For these reasons I feel that there should be very definite indications for opening the abdomen in these cases, because the operation is most likely to wind up as a hysterectomy.

4. In general, I think medical experience indicates that patients without pedunculated tumors should be allowed to progress in the pregnancy if they possibly can. Nature very often overcomes difficulties that seem impregnable even to the obstetrician of widest experience, and many cases come to term. Yet the course of such pregnancies is not always smooth. All large tumors become edematous: most of them also show some beginnings of red degeneration which, if marked, may cause exquisite pain.

Women with long abdomens are more likely to reach term than short-waisted women in whom the degenerating fibroid is much more apt to be forced more firmly against the abdominal walls. Yet several women with large tumors who "stuck it out" and came to term told me that they often had what seemed unendurable pain of which they did not complain for fear I would interrupt the pregnancy. Yet at time of my examinations they had neither temperature nor evidence of marked degenerations in the tumors. All patients with fibroid complicating pregnancy should be warned to avoid strain and fatigue and to make a business of safeguarding their pregnancy because of the increased chance of abortion or of premature labor.

There is always a question as to the best treatment for women who have come to term after myomectomy in early pregnancy. Such history, I believe, presents a strong argument for cesarean. This is strengthened if the patient is not young, if not in excellent condition, or if the fetus lies in even a relatively unfavorable position. Practically, however, two operations in close succession present economic problems for the patient's consideration.

Even of greater interest, is the best treatment of women at term with large fibroids in the fundus who have no other indications for operation. Most of these women deliver quickly and spontaneously. If they do not deliver quickly, their labor may drag on for a long time because fibroids in the uterine wall frequently cause inertia.

When there is indication for cesarean at term, the question often arises whether it should be followed by hysterectomy or myomectomy. The patient's age may be an important factor in determining the treatment. Hysterectomy is relatively safe, yet if the patient is comparatively young we should bear in mind that unless there are many small tumors, fibroids may involute so completely that they seem to have disappeared after labor. We may let such tumors alone with safety to the patient because thromboses follow myomectomy more often in the pregnant than in the nonpregnant conditions. The mother has less risk if her child is born through natural passages unless there are interstitial tumors which become displaced in involution during the puerperium and subsequently become infected. Large sessile subperitoneal tumors are not likely to degenerate during the puerperium. When I have performed myomectomy on such women a few months after normal or forceps delivery, I have been surprised at the extent the tumors had involuted. This treatment, although safe, does not always fit in with the patient's economic conditions.

No discussion of fibroids can be complete unless it emphasizes the frequency of infectious processes during the puerperium. These have been known ever since Hippocrates described them, but fortunately they are not common. The patient in this type of case usually has a low-grade long-continued fever before sloughing of the tumor. If free drainage follows, the infection may clear fairly promptly, but sometimes remains as a uterine abscess. For which reason hysterectomy is often advisable in early infectious processes during the puerperium. The literature is filled with case reports illustrating the folly of waiting. Twice in my own experience I have had this complication where hysterectomy was impossible on account of the patient's cardiac condition. With the exceptions described above and just enumerated, I believe that fibroids and pregnancy should be left alone through labor and the puerperium unless there are definite indications for operative interference.

#### OVARIAN CYSTS

These tumors are not commonly found in pregnancy. Their frequency varies with reports of different series. In Sloane Hospital (1931) they occurred once in 500 cases; in the University of California Hospital, once in 1500; in McKerron's compilations (1903) it was once in 2500 pregnancies. The tumors are thought to occur more often in nonpregnant women of the same relative age for which reason some believe they interfere with conception. Most of the cysts are small; they may or may not grow rapidly during pregnancy.

The character of the cysts varies in different series. Dermoids, however, are the most common and serous cysts the most rare. Lutein cysts, although often found, rarely cause complications. Many writers exclude them from compilations since they disappear spontaneously after pregnancy.



In the absence of complications the cyst may cause no symptoms: 37 per cent of Caverly's seventy-three cases never gave symptoms. If the tumor is large it may cause pressure symptoms, varying from discomfort dyspnea, bladder irritability, etc., to actual pain. The well-known group of symptoms of ileus follows torsion of the pedicle with strangulation, hemorrhage into the cysts usually follows, and sometimes even suppuration. Adhesions are common but seldom cause definite symptoms.

The usual accidents to ovarian cysts that occur in the nonpregnant are even more apt to occur during pregnancy. According to McKerron, twisted pedicle occurs in eight per cent of such tumors in nonpregnant women, in 12 per cent in pregnant, and in 20 per cent during the puerperium. He found acute complications of the cyst in 25 per cent of cases during pregnancy, and 40 per cent during the puerperium. Rupture of the cyst was common in early time, as was necrosis because the cyst was traumatized during labor. Now they are uncommon. Eiss, in 1930, reports a case of bilateral tumors, each of which ruptured in pregnancy. Graefe states that ovarian cysts produce abortions or premature labor in from 14 to 20 per cent of cases because the tumor or uterus becomes incarcerated in the pelvis, the pedicle becomes twisted or because of pressure from the tumor masses or by infection. Nearly one-half of ovarian cysts are in the pelvis during pregnancy.

The diagnosis is easy if the cyst is in the pelvis, but it is often missed if the tumor is small and behind the uterus, when its presence may not be revealed until after labor. Recently I removed such a tumor. The more carefully the antepartum examinations are made the more often the diagnosis will be made early. McKerron, who collected 1290 cases in 1903, says "80 per cent of small tumors occupying the pelvis are found only upon pelvic examinations in labor." This also was the fact in three cases which I saw in consultation. On the contrary, the diagnosis was made during pregnancy in 77 per cent of Caverly's eighty-three cases. The absence of symptoms in one-fourth of cases shows the necessity of most careful antepartum routine examinations.

The physical findings are often misleading. Hard semisolid dermoids or cystic tumors made tense by pressure may be mistaken for fibroids or vice versa. The abdominal distention with large flaccid cysts and fat abdomen may be most confusing. Ascites is common with cysts but rarely occurs with fibroids.

There is no difference of opinion as to the proper treatment of ovarian cysts discovered early in pregnancy. All agree that they should be removed whatever their size, type or location. The fourth month of pregnancy is acknowledged to be the time at which abortion is least likely to follow operation. There is some difference of opinion as to what you should do with a very early pregnancy if the tumors are bilateral. Fortunately this is a comparatively rare finding, usually estimated as five per cent of cases.

There are many reported cases where both ovaries have been removed and the pregnancy has normally continued. It is usually stated that the corpus luteum is indispensable to pregnancy for the first two months and removal during that time precipitates abortion. Waldstein, however, recently removed bilateral dermoids at the second month without interrupting the pregnancy. Caverly reports two abortions following eight single ovariectomies before the third month of pregnancy. Twice I have been unwilling to allow an early pregnancy to continue after having removed both ovaries. Both women, however, had had many children and both had had torsion and peritoneal complications.

The question naturally arises as to the best method of delivering women whose ovarian tumor was removed during early pregnancy. The abdominal wall in these cases will probably be strong enough to stand a normal labor. If the operation was done late in pregnancy, one must always consider the necessity of cesarean. Yet this plurality of operations often entails serious economic consideration. Within the last ten years I have seen several cases where abdominal tumors were diagnosed in the last part of pregnancy and were let alone until term when the patient was delivered by cesarean section. Many, however, believe that the mortality will be less if the woman is allowed to deliver and the tumor is removed during the puerperium. However this may be, all agree that never should the child be dragged past the tumor. Dermoids rupture easily and excite a chemical peritonitis. Shock follows the rupture of other cystic tumors. Tumors whose presence were not suspected during a pregnancy or labor should be operated during the puerperium since torsion is far more common than in the nonpregnant condition. The puncture of the cyst or the incomplete removal through the vagina should no longer be attempted. It belongs to the old era of surgery.

In summary, we may say that in sharp distinction to fibroids complicating pregnancy or labor which seldom require surgical operations, ovarian cysts discovered during pregnancy, labor or the puerperium, with very few exceptions call for immediate surgical interference. Succinctly we may say that in dealing with fibroids one must have an exceptional case if operation is required; with ovarian tumors one must have an exceptional case if operation is not required.

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#### DISCUSSION

EDWARD N. EWER, M. D. (251 Moss Avenue, Oakland).—Doctor Lynch has long experience and sound judgment to back his dogmatic statements. His conservative rules for treatment of these tumors complicating pregnancy may be followed with confidence for they are safe and will not disappoint.

A fibroid may produce symptoms warranting surgical interference during the course of pregnancy, but such an emergency must be rare, for I have seen many pregnancies complicated with fibroids of all sizes but never one which urgently required operation before term. Had I done myomectomies and hysterectomies on them all solely because of the presence



of the tumors many babies and possibly some mothers would have been lost. I have permitted all such pregnancies to go to term.

One patient now two months postpartum with a fibroid still reaching above the umbilicus had an easy forceps delivery after rotation of the head from a posterior position. The puerperium has been quite free from unpleasant symptoms. Two others were cesareanized successfully and with as little risk, in my opinion, as they would have undergone had myomectomy or hysterectomy been performed in the early stages of their pregnancies, and there was the great satisfaction of preserving the infants. Another large fibroid became necrotic after delivery and was removed without trouble on the seventh day postpartum.

One of my first fibroids, encountered upon examination in the beginning of labor, occupied nearly the whole of the brim of the pelvis, but it receded as the cervix retracted and caused no interference with the labor, which was short and spontaneous. I have since had several similar experiences.

One trying case was a breech presentation with prolapse of the cord. There were several small fibroids low in the uterus. The baby was saved but the uterus was infected and convalescence was slow. Cesarean section was unusual and hazardous then, but in its present state of perfection it would, I think, be the treatment of choice in such a complicated case. As Doctor Lynch states, there is general agreement that ovarian cysts should be removed during the fourth or fifth months of pregnancy and a pedunculated fibroid may present the same dangers and need removal. Doctor Lynch's last paragraph qualifies as an axiom and its retention in the memory should return profits.

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JOHN W. SHERRICK, M. D. (350 Twenty-ninth Street, Oakland).—I find it hard to generalize in discussing this question because it is so difficult to prognosticate intelligently the course in each individual case. Too often the apparently simple fibroid develops complications—degeneration with pain and its attendant dangers, twisting of pedicle with vascular strangulation and peritoneal irritation, irritable uterus with threatened abortion, etc.—which endanger the patient, while the large tumor, with every evidence of potential catastrophe, will offer no interference during pregnancy, labor, and the puerperium. Our general plan is selectivity, considering each individual case carefully with all the possibilities in mind and discussing frankly and in detail the various problems and possibilities with the patient and her husband before deciding upon a line of treatment. We are growing more and more conservative except in those cases where dangers are very evident because we feel that the apparent risks involved are not borne out in the majority of cases. If the condition is one to demand abortion I firmly believe that the fibroid condition should be dealt with immediately or shortly after the abortion, conservative myomectomy being utilized if feasible and depending on the patient's age, plus the desire for children. In short, we subscribe to a policy of watchful waiting in the majority of cases where the risk of complicating development is relatively minimized, eliminating certain pedunculated tumors and those attended by a very definite risk.

I am not in favor of myomectomy of the intramural tumor during pregnancy, but favor careful supervision during the prenatal period with whatever management at term seems demanded by the individual picture as pointed out by Doctor Lynch. Extensive myomectomy during pregnancy in the majority of cases seems fraught with too many dangers to justify its use except in unusual circumstances. These dangers, as he outlines them, are very well taken, namely, immediate postoperative abortion under dangerous local and general conditions; poor coaptation and healing of uterine wound edges or pressure necrosis by sutures; poor hemostasis of uterine wounds, subsequent dangers at the time of delivery,

disturbing pelvic adhesions, too extensive or inexpert surgery which often might better be avoided altogether or deferred, etc. If operation is indicated it seems more logical to abort the patient at the same time, leaving her the possibility of a future pregnancy under safer conditions.

The management at term of the patient with fibromata of real importance presents grave problems. While many will deliver spontaneously, others meet with serious difficulties—obstruction, uterine inertia, faulty presentation, premature separation of the placenta, postpartum hemorrhage, degeneration and sloughing of the tumor postpartum, etc. Since these complications cannot be anticipated we favor conservative and intelligent cesarean section, dealing with the uterine pathology as indicated.

I agree completely with Doctor Lynch in his conclusions regarding the treatment of ovarian cysts complicating pregnancy. A few months ago I removed an enormous adherent dermoid cyst from a woman who was three months pregnant. Convalescence was uneventful and the pregnancy continued normally to term when she was delivered spontaneously and easily.

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FRANK C. AINLEY, M. D. (1136 West Sixth Street, Los Angeles).—There is no cardinal point upon which one would disagree with Doctor Lynch in his splendid and honest discussion of fibroids complicating pregnancy.

I have been impressed with two points in relation to this problem:

First: Spontaneous miscarriage in the early months commonly occurs.

Second: Spontaneous delivery and a normal puerperium can be expected in a very large percentage of cases going to term.

Myomectomy during pregnancy must necessarily increase the percentage of miscarriages. Naturally a pedunculated fibroid with twisted pedicle or a large fibroid so situated as to obstruct the birth canal require surgical treatment, the types of which are well recognized. Other cases, however, may well be allowed to progress without surgical interference and with reasonable assurance of a happy outcome.

Our experience with ovarian cysts complicating pregnancy would lead us to be more conservative than is recommended by Doctor Lynch.

I am inclined to believe that definitely pathological ovarian cysts occur at least as often as one in five hundred pregnancies, as was the case in the Sloan Hospital reports. Spontaneous miscarriage in cases seen by us without operation was not common.

Without search of my files, I readily recall the following eight cases.

Three patients with ovarian cysts complicating pregnancies were carried to full term, delivered normally, and the ovarian cysts removed at later dates. One of these showed bilateral ovarian cysts.

Another patient was carried to full term and delivered naturally but the ovarian cyst ruptured during labor, without disastrous consequences.

Another was carried to full term, the cyst having ruptured late in pregnancy, and when a cesarean section was done, because of a contracted pelvis, a few adhesions remained about the ovary.

I have seen one patient where the ovarian cyst became twisted on its pedicle at about four months, necessitating oöphorectomy. This patient subsequently went to term and was delivered normally.

Two cases terminated in abortion following removal of ovarian cysts at about two months of the pregnancy. One of these was bilateral and the abortion occurred some two or three months following operation.

I recall no patient in whom we observed spontaneous early abortion not associated with operative interference.



We have no reason to believe that ovarian cysts will retrogress after pregnancy, as may be the case with fibroids. The treatment of ovarian cyst is surgical. The complications of cysts with twisted pedicle during pregnancy, labor or the puerperium, and the complication of the rupture of a cyst may be unpleasant, yet my experience leads me to believe that, where the patient is in close touch with a trained obstetrician and satisfactory hospital facilities, one may be justified at times in following a conservative course but must be prepared for emergencies which can arise.

I am satisfied that had the ovarian cysts in all of the patients enumerated above been removed promptly when first detected or at the fourth month, we would have lost more of the pregnancies by miscarriage.

In the interest of completeness one would like Doctor Lynch to have mentioned the cases of pregnancy complicated by large cyst in the broad ligament. These may be of sufficient size to prevent delivery through the usual channel. Operation to remove the cyst during pregnancy could be best done at the sacrifice of the uterus and pregnancy. Although the delivery is necessarily done at term by cesarean section, the removal of the cyst at the same time is very difficult and dangerous because of the marked vascularity of the pelvic structures and can be accomplished with less risk at a later operation.

## SURGICAL LESIONS OF THE BILE DUCTS AND THE GALL-BLADDER: CERTAIN PRINCIPLES IN THEIR TREATMENT\*

By WALTMAN WALTERS, M. D.  
*Rochester, Minnesota*

IN considering the surgical treatment of lesions of the biliary passages, I shall deal only with the most important features concerned in: (1) indications for operation, (2) significance of jaundice, and (3) associated lesions of the liver and pancreas.

### INDICATIONS FOR OPERATION

It will not be disputed that patients with lesions of the gall-bladder that produce pain severe enough to require morphin do not afford a problem for the clinician, particularly if the colic appears at frequent intervals. The necessity and value of cholecystectomy or cholecystostomy in these cases is as well appreciated by laymen as by the profession. There is a group of patients, however, usually women, who have stones in the gall-bladder, without characteristic symptoms, and they are accidentally discovered by the roentgenologic examination, in the course of a general examination, or at operation for another trouble. Gall-stones of this type have been given the erroneous name of "silent gall-stones," silent because they have existed unknown to the patients, yet far from silent from the standpoint of inactivity or potential harmful effects.

Clinical and experimental evidence is overwhelmingly in favor of the hypothesis that the formation of stones in the gall-bladder occurs only in the presence of infection. Such infection

in the walls of the gall-bladder may spread through its lymphatic structures to the liver, examples of which are evident hepatitis in the portion of the liver which overlies the diseased gall-bladder. Extension of the infection in the walls of the gall-bladder, through its lymphatic structures to the pancreas, is not uncommon, clinical evidence of which is the indurated, nodular feeling of the pancreas on palpation. More exaggerated effects on liver and pancreas, secondary to infection in the walls of the gall-bladder, are illustrated by a group of patients operated on for diseases of the biliary passages who were jaundiced at the time of operation. Stones, strictures or tumors were not present to obstruct the common or hepatic ducts. In such cases cholecystectomy and drainage of the common bile duct relieves the jaundice and restores the patient to health.

In a few cases in which examination unexpectedly revealed stones in the gall-bladder and cholecystectomy was advised, the patients wished to defer operation. They have returned sometimes within a comparatively short time, complaining of increasing dyspepsia or of biliary colic. In some of these cases it has been found at operation that a stone had been impacted in the cystic duct with distention of the gall-bladder and empyema. The stones apparently had left the gall-bladder in the course of an attack of colic and had entered the cystic duct or had passed through it into the common bile duct. Delay in removing the diseased gall-bladder and the gall-stones increased the extent of the lesion as well as the risk of operation, both of which would have been avoided by operation when the disease was confined to the gall-bladder.

There is a group of cases of disease of the gall-bladder, with or without stones, in which pylorospasm or other disturbances of motility of the gastro-intestinal tract occur secondarily, producing in some instances rather characteristic dyspepsia; in others bizarre features. The distressing feeling of fullness in the epigastrium noted soon after eating, and its aggravation following the eating of food such as raw apples, fats, cabbage, and particularly fried foods, is almost pathognomonic of cholecystitis. In this type of case, in which the roentgenogram has shown the gall-bladder to be incapable of filling and emptying normally, I am inclined to advise operation, particularly if the dyspepsia has been sufficiently continuous or disturbing to interfere with the patient's health. In such cases accurate determination of the site of the infection is of the utmost importance and the necessity of operation must be accurately determined, else failure completely to relieve patients may lead them to discredit cholecystectomy. The so-called failures to cure following cholecystectomy may occur in cases of this type, and yet, in properly chosen cases, as excellent results may be obtained as in cases of biliary colic. The value of operative procedures is further emphasized by the fact that they lead to exploration of other abdominal viscera. A demonstrable, definitely subacute, or even

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an acute infection sometimes has been discovered to exist in the appendix. I recall a case of mild dyspepsia in which the symptoms did not seem to warrant cholecystectomy. The day following examination an acute exacerbation developed of what for the first time appeared to be acute appendicitis rather than cholecystitis.

#### SIGNIFICANCE OF JAUNDICE

In considering the significance of jaundice, I shall refer only to the obstructive type. If jaundice is obstructive it should be determined whether the obstruction is within the liver or in the extrahepatic bile passages. Probably the simplest method of differentiation can best be expressed as follows:

In a case of painless jaundice in which the amount of bile in stools or in duodenal content is normal, and the gall-bladder is not palpable, the possibilities are that the obstruction is intrahepatic. Obstructive jaundice following attacks of biliary colic, or accompanied by chills and fever, or painless jaundice with absence of bile in the stools and a palpable gall-bladder, are most likely to be due to an obstructing lesion of the extrahepatic bile ducts. From the standpoint of differential diagnosis of lesions obstructing the common and hepatic bile ducts, it might be emphasized that biliary colic followed by jaundice, with or without chills and fever, is indicative of intermittent obstruction to the passage of bile from the liver to the intestine. This is true whether the cause of the obstruction is stone in the common or hepatic bile ducts, tumor in the head of the pancreas, or stricture. Furthermore, painless obstructive jaundice may occur from the same causes. It has been said that no one is infallible in making a differential diagnosis of obstructive jaundice. The diagnosis is always difficult and the chance of a life saved is so important that no matter how positive the evidence of a malignant lesion may be, exploratory operation is advisable if the patient's general condition will permit such a procedure with reasonable safety.

A period of observation of three or four days in cases of obstructive jaundice enables one to determine whether the jaundice is fluctuating. This can be determined best by the van den Bergh test of the amount of bile pigment in the blood serum. If the degree of jaundice is receding, it is best to delay operation until the amount of bile pigment in the blood serum reaches a minimal level. On the other hand, should the jaundice be increasing, the advantages of immediate exploration must be weighed carefully against the increased risk of operation. In this period of observation the patient can be prepared for operation by administration of a sufficient quantity of fluids, usually 3000 cubic centimeters daily, and an abundance of carbohydrates, to compensate for the disordered function of the liver; the administration of agents that increase blood coagulation, such as calcium chlorid intravenously or transfusions of blood, may compensate for

the effect of bile in the blood. In general, if the concentration of serum bilirubin is greater than 15 milligrams in each 100 cubic centimeters, the parenchyma of the liver may have been considerably injured. I have observed patients of this type who failed to recover, owing to insufficiency of the liver after the simple removal of stones obstructing the common bile duct, a further argument in favor of early operation in cases of cholelithiasis.

In dealing with stones in the common bile duct, it is absolutely essential that all stones be removed, else obstruction will recur in which event increased jaundice or uncontrollable bleeding, with terminal hepatic and renal insufficiency may prevent recovery.

In cases of stricture of the common bile duct in which there is sufficient normal duct above the stricture to permit anastomosis to an opening in the duodenum, a union of mucous membrane to mucous membrane should be secured; this is by far the best method of restoring continuity between the biliary and the intestinal tracts. There are scores of records in The Mayo Clinic in which this operation has been carried out and the patients have lived without evidence of obstruction for a sufficient number of years to prove that the obstruction has been satisfactorily and permanently relieved.

There are cases of complete stricture of the common and hepatic bile ducts in which the chances of reestablishment of passage of bile from the liver into the intestine are thought to be almost hopeless. In such cases, within the last seven or eight years, relief has been afforded by establishing external discharge of bile and later restoring biliary-intestinal continuity by coning out the established external biliary fistula and transplanting it into the stomach or duodenum. In the early part of 1931 I reported five such cases in which I had operated and which I had studied for several years. The results were surprisingly good.

#### ASSOCIATED LESIONS OF THE LIVER AND PANCREAS

In tumors of the head of the pancreas in which obstruction of the common bile duct is produced, diagnosis is made immediately on opening the abdomen; the gall-bladder and the common bile duct are distended, but the walls are normal in color and thickness. In the head of the pancreas is felt an indurated, irregular, almost stony mass, typical of a carcinoma of the pancreas. In such cases anastomosis of the gall-bladder to the stomach or duodenum, besides prolonging the lives of patients, affords relief of the jaundice and of the troublesome itching of which most patients complain bitterly. I have observed a few patients with this type of obstruction who have lived comfortably and have carried on their work for more than three years. It must not be forgotten that in some instances the clinical diagnosis of a malignant lesion, with tumor in the head of the pancreas, may be erroneous; the enlargement of the

obstruction at the head of the pancreas may be the result of inflammatory rather than of malignant change. A permanent good result, with relief of the obstruction, can be expected in these cases. The possibility of error in the clinical diagnosis of carcinoma of the head of the pancreas, averages, I believe, about 15 per cent; thus it would seem best not to commit oneself hurriedly to a diagnosis of a malignant lesion. A diagnosis can be made only by removal of a specimen from the pancreas; however, this is done only in exceptional cases because of the danger of uncontrollable postoperative bleeding. On the other hand, if patients live longer than five years following cholecystenterostomy, it may be assumed that the obstructive lesion was inflammatory.

I have mentioned briefly a group of cases in which jaundice may accompany cholecystitis, without evident cause for the obstruction in the common or hepatic ducts or in the pancreas. Usually the infection in the walls of the gall-bladder, which may be slight, is the result of obstruction within the liver or in the pancreatic portion of the common bile duct, due to extension of the infection from the gall-bladder to these structures. In other cases the jaundice is due to induration from infection extending from the gall-bladder, down through the walls of the cystic duct, into the walls of the common bile duct; the burden of proof that a stone or stones is not the cause of the obstruction rests squarely on the surgeon's shoulders. In these cases the common bile duct must be opened and explored thoroughly with scoops for stones. The surgeon should not be satisfied until he has ascertained that the exploring scoop slips readily through the lower end of the common bile duct into the duodenum.

#### POSTOPERATIVE CARE

The significance of the care of patients following operation for lesions of the biliary tract, especially patients who have jaundice, cannot be overemphasized. Sufficient fluid must be maintained in the body. At times the intravenous injection of glucose, 10 per cent in physiologic sodium chlorid solution, is of a decided advantage. If oozing takes place, intravenous injections of solution of calcium chlorid or transfusion of blood, repeated if necessary, will often prove to be life-saving measures. Should the patient bleed subsequent to operation, I have never hesitated to reopen the incision to determine the site of the bleeding, and to control it, regardless of the condition of the patient. On two occasions (one of which occurred within the last six weeks) such procedures, I am certain, made it possible for the patients to recover. A study of the concentration of bile in the blood, of the coagulability of the blood, of the function of the kidneys subsequent to operation, afford valuable information of the patient's progress; such study is especially important if the patient's convalescence is troubled, for it affords indications of the site of the trouble and assists in determining the proper methods directly to overcome it.

The Mayo Clinic.

## CARDIOSPASM\*

By JOHN HUNT SHEPHARD, M. D.

San Jose

DISCUSSION by Gunther Nagel, M. D., San Francisco; F. A. Speik, M. D., Los Angeles.

IN 1906 Dr. H. S. Plummer, in a paper reporting forty cases of cardiospasm, read before the Minnesota State Medical Association, said: "So little attention has been paid the subject by American clinicians that a brief general consideration seems desirable."

Since that paper was so complete, any subsequent writings are only a restatement of the findings therein contained, which probably explains why so few papers have been presented upon this subject. My only excuse for presenting this paper is to refresh your memory, for I am confident that many of these cases are being overlooked.

Though the condition is most distressing, easy to diagnose, successfully and almost magically relieved, it is not receiving the attention its frequency entitles it to.

Vinson reports 415 cases showing definite roentgenologic evidence of obstruction to the barium meal, seen at the Mayo Clinic from January 1908 to June 1923. This is approximately one out of every eleven hundred admissions. Since the vast majority of their patients had recent medical advice elsewhere and only rarely had the cardiospasm been recognized, we must conclude that proper consideration has not been given to this condition.

In 1874 Von Ziemssen and Zenker collected the first series of cases of cardiospasm from autopsy records and considered them to be idiopathic dilatation of the esophagus. Mikulicz in 1882 was the first to attribute this dilatation to spasm of the cardia.

#### ETIOLOGY

The etiology is unknown. Though the intermittent spasmodic closure of the cardia suggests a nervous origin, definite evidence of neurosis is usually absent. Recent advances in our knowledge of the sympathetic nervous system and its control over nonstriated muscle fibers, permits one to speculate that perhaps the sympathetic nervous system may have something to do with the causation of cardiospasm and megacolon, and ultimately, on this same basis, we may transfer asthma to the surgeon's field.

The symptoms of cardiospasm are often pathognomonic. Moynihan once said duodenal ulcer can usually be diagnosed over the telephone. So cardiospasm is usually diagnosed from the history, though the x-ray must confirm or deny the diagnosis.

#### THREE STAGES IN THE DEVELOPMENT OF CARDIOSPASM

There are three stages in the progress of the development, or we may say three degrees, of cardiospasm.

\* Read before the General Surgery Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.



The first stage is spasm of the cardia without food regurgitation. This is characterized by pain or discomfort beneath the sternum or a choking sensation during deglutition. These symptoms, which may occur with the swallowing of liquid or solid food, are usually of short duration, and the patient proceeds with his meal. A definite diagnosis is rarely possible during this stage, though a fluoroscopic examination may show a definite lagging of the barium meal at the cardia, but no dilatation of the esophagus. These attacks may be days, weeks or months apart.

The second stage is spasm with immediate food regurgitation. The patient feels a discomfort beneath the sternum, occasionally amounting to acute pain, with immediate regurgitation of food free from gastric juices. Relief is immediate upon emptying the esophagus, but usually the patient will content himself with a few sips of liquid until the next meal. At times the fluoroscopic examination will show a definite closure of the cardia if the barium is given in small amounts mixed with mucilage of acacia, but if taken in aqueous solution and large, rapidly successive swallows, the peristaltic action of the esophagus overcomes any tendency to spasm and the true condition will escape detection.

The third stage is spasm with varying degrees of dilatation of the esophagus, and regurgitation of food a few minutes to thirty-six hours after ingestion. The patient experiences a sense of weight beneath the ensiform, in the left hypochondrium or in the throat, and often is conscious that the food stops before reaching the stomach. Many learn that by taking a glass of water and closing the pharynx tightly while swallowing, they can force the food into the stomach. This can be accomplished only when moderate dilatation of the esophagus is present. Occasionally severe pain is experienced, simulating biliary colic, and unless definite information as to the character of the supposed vomitus is obtained, cardiospasm may not be suspected. When the dilatation has become extreme the esophagus may retain as much as two quarts of food.

#### SYMPTOMS INDICATIVE OF CARDIOSPASM

Extreme weight loss is not common and dehydration not marked since the spasm seems to be intermittent and eventually allows food to enter the stomach.

Fluoroscopic examination in this stage is very characteristic. The regular walled dilated esophagus with the characteristic cigar-tip reaching to the cardia readily differentiates it from malignant or cicatricial obstruction, and a permanent record of the condition is readily obtained on the films.

Every patient with cardiospasm has some complaint referable to the ingestion or retention of food or pain or discomfort in the upper abdomen, beneath the sternum or in the throat, and when we obtain such a history we should think of cardiospasm. With this in mind we will be surprised to find that it is not such a rare entity.

#### HYDROSTATIC DILATATION—INDICATED TREATMENT

The treatment of cardiospasm is spectacular and most satisfactory. Various drugs of the anti-spasmodic group have been tried with but little, if any, success.

In 1898 Russell reported six cases treated by hydrostatic dilatation. Four were cured, one partially relieved, and one not benefited.

Mikulicz in 1904 reported four cases treated by gastrotomy and retrograde dilatation with success in two. A few similar reports appeared about the same time.

Occasionally marked dilatation of the esophagus with a hook-like deformity of the cardia renders it impossible to get the guide string through the stomach and a gastrotomy has to be performed. Vinson reports two such cases.

*First Step in Dilatation Is Anchoring of Silk String.*—The first step in the treatment of cardiospasm, as well as in the treatment of any malignant or cicatricial stenosis of the esophagus, is to string the patient. Two yards of ordinary silk buttonhole twist is unwound from the spool and this point marked with ink. The thread, with the exception of about a foot, is rewound on the spool; the free end is wadded up and the patient instructed to swallow the string gradually so as to reach the ink mark by the following day. The spool is conveniently attached to the patient's clothing with a safety pin. An additional two yards is marked off to be swallowed the second day. When the string finds its way through the stomach it becomes anchored in the loops of the intestines and cannot be pulled out. Not infrequently the string is regurgitated or pulled out by the patient and must be started anew. At times several days are required before the string is securely anchored in the intestines, but a little patience will eventually be rewarded except in those rare cases with marked hooked-like angulation at the cardia.

When testing the string to determine whether or not it has become anchored, place the tip of the left index finger beneath the string, well back in the pharynx so traction on the string will not cut the base of the tongue.

*Passage of Olives.*—After the string is securely anchored, passage of olives attached to the whale-bone staff is begun. Very little resistance to the passage of the olives is met at the cardia and occasionally it is well to view the passage of the olives with the aid of the fluoroscope, as it is important to determine the exact distance between the incisor teeth and the cardia. The frequent passage of the bougie accustoms the patient to the manipulation and makes the final passage of the dilator easier.

If there is much dilatation of the esophagus, requiring considerable tension on the string to guide the bougies into the cardia, it is well to tie to the silk buttonhole twist a fifteen-pound silk fish line and wait until this becomes securely anchored in the intestines before the dilator is passed. It is hard for most patients to swallow

the fish line unless preceded by the silk thread. The peristaltic action of the intestines pulls on the string and if kept loose at the mouth it readily goes down. After a proper string has been securely anchored and the patient sufficiently educated to the soundings, the dilatation is easily accomplished.

*Hydrostatic Dilatation.*—The pharynx may be swabbed with cocain though this is not necessary. A sheet is wrapped around the patient from the shoulders to the buttocks, securely anchoring the hands and arms. The patient is seated on a straight chair, his head securely held by an assistant, with the chin elevated and neck extended. Having previously determined the distance of the cardia from the incisor teeth, the dilator is introduced, the whalebone staff removed, and connection to the water line made. As the bypass tube is compressed, the bag distends. If it has not been properly placed in the cardia it will either slip down into the stomach or up into the dilated esophagus. By firmly holding the tube at the incisor teeth any shifting of the bag can be detected. The bypass tube is compressed until the gauge registers twenty-six to thirty feet of water pressure. Release on the bypass tube immediately allows the bag to collapse and the dilator is removed. The entire procedure from the time the dilator enters the mouth until it is removed requires less than sixty seconds.

Usually the patient experiences a rather sharp severe pain during the dilatation which is recognized as similar to the attack of pain produced by the spasm.

Immediately following the removal of the dilator the patient is able to swallow with complete freedom. Occasionally swallowing may be impaired one or two hours following the dilatation and this impairment may continue for forty-eight or seventy-two hours.

Some patients suffer sufficient pain to require one or two doses of morphin during the first twenty-four hours after the procedure.

One dilatation effects a permanent cure in over 60 per cent of the cases. Those who are not cured usually show symptoms within one to four weeks. Late recurrences are rare. I believe that the cause of recurrence within a few days or few weeks is due to improper placing of the bag in the cardia, for at secondary dilatations I have had patients say to me, "That felt different this time."

#### SUMMARY

Cardiospasm is not a rare condition. The most important thing in its recognition is to bear it in mind.

Hydrostatic dilatation, which can be done in the office, is the proper treatment, and one dilatation results in a permanent cure in over 60 per cent of the cases.

Medical treatment is not successful.

Medico-Dental Building.

#### DISCUSSION

GUNTHER W. NAGEL, M. D. (2000 Van Ness Avenue, San Francisco).—Cardiospasm is becoming more

generally recognized, but the method of treatment described by Doctor Shephard which is so effective does not appear to be widely known.

A patient of mine illustrates this point. This young man had suffered from cardiospasm for seven years and during the last few years his life had become utterly miserable. He consulted numerous doctors, all of whom correctly made the diagnosis of cardiospasm but none of whom was able to afford this patient any relief. A single hydrostatic dilatation has given him complete relief for a period of over a year now. Other cases of mine illustrate the same point.

Cardiospasm can be confused occasionally with carcinoma of the lower end of the esophagus. In a few cases hydrostatic dilatation cannot be carried out successfully because of the tortuosity of the distended esophagus. In such cases operation is indicated with manual dilatation of the spasm through a gastrostomy opening.



FREDERICK A. SPEIK, M. D. (800 Auditorium Building, Los Angeles).—Doctor Shephard's paper is timely and will direct attention to this rare and interesting condition.

The name itself is misleading; it should be "lower esophageal spasm." Nurses and many doctors think of the heart when we speak of cardiospasm.

Many physicians are unaware that spasm of the lower end of the gullet leads to true pathology such as ring-like hypertrophy of the muscles at the cardia, and true pouch formation.

Many cases are not diagnosed because the symptoms are confusing. The two chief symptoms are:

1. Regurgitation of large quantities of mucus; and
2. Difficulty in swallowing liquids.

The diagnosis may be confused with obstruction at the outlet of the stomach as well as carcinoma of the esophagus. Correctly diagnosed, it yields rapidly to proper treatment. Being a disciple of Sippy, we use the air pressure bag, which gives uniformly good results.

## CHRONIC EMPYEMA: NONTUBERCULOUS\*

### REPORT OF CASES

By CHARLES D. LOCKWOOD, M. D.  
Pasadena

DISCUSSION by Charles M. Fox, M. D., San Diego; Emile Holman, M. D., San Francisco; Clark L. Abbott, M. D., Oakland.

THE problem of chronic empyema still presents many difficulties and there is no standardized procedure applicable to all cases; each must be individualized. I believe, however, that every case of nontuberculous empyema can be soundly healed by judicious and persistent treatment.

The first step in every long-standing case of pleural suppuration should be a most painstaking study to determine the location and dimensions of the empyema cavity, the expansibility of the lung, the existence of pleurobronchial fistulae and the nature and virulence of the organism. The general condition of the patient should also be considered in deciding upon the extent and type of operation to be undertaken. Most of the patients suffering from long-standing empyema have damaged kidneys and hearts and do not tolerate long and shocking operations. I formerly used

\* Read before the General Surgery Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.



Beck's paste to outline the cavity for x-ray study, but since the introduction of iodized oil I have found this medium less toxic and equally efficient. Stereoscopic anteroposterior and one or more lateral position roentgenograms are taken.

Many patients come to southern California and the Southwest with chronic discharging sinuses or wearing drainage tubes in empyema cavities of long standing. These patients are sent in the hope that the climate and open-air life will heal their chests. They have usually undergone two or three operations and have finally been condemned to wearing drainage tubes indefinitely. It is often difficult to gain the confidence of these chronic sufferers and induce them to make another effort at healing. Many of them will heal promptly if only the tube is removed and left out, but having worn their tubes for months or years they are loath to part with them and are often terror stricken at the suggestion.

In addition to the numbers which will heal on removal of the tube and daily cleansing of the cavity, there is another large group in which the drainage is poorly placed or inadequate; often there is a residuum of from four to six ounces of pus in the bottom of the cavity which drains intermittently or only when the patient is recumbent. A large percentage of these can be healed by adequate dependent drainage and frequent irrigation with Dakin's solution.

Before undertaking any extensive operation to obliterate an old empyema cavity, thorough drainage is secured and the patient's resistance raised by eliminating sepsis. After all of the simple measures have been tried, however, and the resistance raised to the maximum, there still remains a small group of cases which require some radical surgical procedure. I wish to report briefly five such cases and illustrate the method employed in their treatment.

#### REPORT OF CASES

**CASE 1.—A. B.** Case No. 5339. This patient, twenty-three years of age, came to California with a discharging sinus of three years' duration. Empyema had followed pneumonia. The sinus was drained by a simple rib resection and, after more than two years of drainage, five ribs were resected. There was some improvement but the sinus persisted. He came to California hoping to be cured by the climate. At this time I saw him. X-rays taken at this time, after the injection of bismuth paste, revealed a cavity in the posterolateral aspect of the chest about six inches in length and one inch in width. It was separated from the partially expanded lung by a dense membrane. The cavity extended upward and downward about equidistant from the constricted opening in the chest wall. A second injection of bismuth paste two weeks later showed the cavity almost double the size it was on first examination. When completely filled, foul smelling pus would well up from the bottom of the cavity. There being no improvement, operation was decided upon.

**First Operation.**—Ninth, tenth, and eleventh ribs were resected in the posterior axillary line, exposing the bottom of the cavity which rested upon the diaphragm. Great improvement followed this improved drainage, but the sinus continued to discharge after prolonged drainage and irrigation with Dakin's solution. After six months' treatment a second operation was done.

**Second Operation.**—Cavity was exposed by resection of previously removed ribs. The thickened pleura was excised and dense bands of adhesions divided. The lung was liberated by decortication. All communicating sinuses were obliterated. Prolonged drainage and irrigations with Dakin's solution again failed to secure healing. After eight months, sinuses still persisted.

**Third Operation.**—Cavity was widely exposed. The lung was decorticated but would not expand. Two large pedicled skin flaps, one above and one below, were dissected up from the chest wall, turned into the cavity and sutured to thickened visceral pleura; the chest was left widely opened and packed with iodoform gauze. The cavity was packed daily and rapidly granulated. The skin pushed in from the edges of skin flaps and in about six months the cavity was entirely lined with epithelium. All discharge had ceased and the patient was restored to perfect health. He has remained well up to the present time, four years after the last operation.

✓ ✓ ✓

**CASE 2.—Dorothy H.** Case No. 6855. This girl, twenty-three years old, had pneumonia at the age of eleven, followed by empyema, which was drained. The sinus healed and remained closed for one and one-half years when the cavity refilled, and was again opened. After this operation it remained healed for three years, but again reopened and has alternately opened and closed at periods varying from three or four months to a year. She had been operated upon five or six times with short periods of relief. In 1922, six months before I saw her, after a brief closure, she suddenly began to expectorate foul pus. She continued to expectorate eight ounces daily, with intermittent drainage from a sinus in the left side at the level of the sixth rib. Her general condition was fairly good but she was harassed by a constant cough and by the offensive odor, which was noticeable to everyone. Four operations were required to cure her.

**First Operation.**—Resection of rib was done at the site of the old sinus. A large empyema cavity was exposed by the Tuffier rib spreader. Thick cicatricial membrane covering lung was incised and partially removed, liberating the lung at site of pleurobronchial fistula. A pucker string of chromic catgut was placed about the fistulous opening. The pleurobronchial fistula remained closed and the patient's cough ceased. The empyema cavity continued to discharge and two months later another attempt was made to close the sinus.

**Second Operation.**—Five ribs and the angle of the scapula were resected, and the cavity was widely exposed. Thickened pleura was dissected off the lung as far as was possible, since the cavity extended up to the apex of lung and was very inaccessible. Three large pedicled skin flaps were implanted into the bottom of the cavity, the chest left wide open and packed with iodoform gauze. After the operation the patient rapidly improved and gained in weight. The cavity was dressed for many months and it was necessary to do two subsequent operations with implantation of skin flaps to secure complete epithelialization of the visceral pleura. The patient has now been well for four years and is pursuing her profession as a teacher of art.

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**CASE 3.—Mrs. M. C.** Case No. 6570. Empyema was secondary to lung abscesses. This was a patient referred by Dr. C. C. Browning of Los Angeles for an abscess of the left lung. Six years previously she had suffered from tuberculosis of her right lung which had healed. The development of her abscess can be followed in the x-ray films from its inception until its rupture into the pleural cavity, with the complete filling of the pleural sac with pus. The pus finally broke through into a bronchus and the patient expectorated from four to six ounces of fetid pus daily. She was septic and emaciated. The first operation,



done in Tucson, Arizona, consisted of the resection of the eighth rib in the posterior axillary line and the drainage of a thick-walled abscess the size of a hen's egg in the left lower lobe. Improvement followed but there was a continuous discharge of foul pus, both by mouth and through the drainage tube. There were periodic "floodings" of pus, when several ounces would discharge simultaneously through the bronchial fistula by mouth and through the drainage tube. Following these periods the temperature would drop and the general condition would improve.

**Second Operation.**—The seventh rib was resected from the costocartilaginous junction to the costo-vertebral angle and the cavity in the lower lobe exposed. It was found to consist of several compartments, the uppermost of which communicated by a funnel-shaped opening with a much larger cavity in the upper lobe. The latter occupied almost the entire upper lobe and communicated with a bronchus. These findings explained the periodic floodings of pus. A large drainage tube was passed through the lower abscess into the upper one. This gave perfect drainage. Rapid improvement followed with greatly diminished expectoration. The chest sinus persisted.

**Third Operation.**—At Pasadena Hospital the lung was freed from the chest wall, the fistula dissected out, swabbed with two per cent gentian violet in 70 per cent alcohol and closed with a pucker string of chromic catgut. The chest was closed, leaving only a Penrose drain in the posterior angle. The chest sinus healed but the patient continued to expectorate one or two ounces of pus daily with occasional exacerbations of temperature. She regained her normal weight, married and gave birth to a healthy baby. She continued to have periodic attacks of fever with increased sputum. X-ray films after lipiodol injection revealed a persisting abscess in the left lower lobe.

**Fourth Operation.**—After thoracoplasty, with resection of five ribs, from fifth to tenth, the patient has further improved but still has thirty to sixty cubic centimeters of sputum daily with occasional rise in temperature. She is practically well and attends to her household duties, but further lung collapse will be required to obliterate the old abscess cavity.

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**CASE 4.**—Mr. C. F. Case No. 5461. This man had had an interlobar empyema following lobar pneumonia. The patient first presented a simple effusion which became purulent after two weeks of normal temperature. Closed drainage with a catheter gave temporary relief with normal temperature. In two weeks the temperature again rose to 104 degrees. X-ray films showed an interlobar collection of pus at the level of the sixth rib. This was drained by resection of the seventh rib in the anterior axillary line. X-ray film shows the catheter tube in the abscess, with a new abscess forming higher up to inner side of the lung apex and near the mediastinum. Temperature which had dropped to 101, again began to rise and another x-ray picture one week later showed a well developed abscess near the mediastinum.

The eighth rib and a portion of the seventh were resected and the chest cavity was exposed so that the hand could be passed up over the apex of the lung to the mediastinal abscess. Two ounces of fetid pus were thus evacuated and a large tube introduced. After this operation the patient rapidly improved, temperature returned to normal and he made a complete recovery.

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**CASE 5.**—Mr. H. L. A. Case No. 5517. This man while in the army in France in 1918 suffered from acute pleurisy with effusion. He recovered from this and after six weeks was sent to the front. He was wounded. Several fragments of shell perforated the right thoracic cavity and one fragment entered the left pleural cavity. This fragment was thought to have entered the pericardial sac and a pericardotomy

was done. The fragment was found to be posterior to the pericardium. Empyema developed on the right side, and was drained. He was in bed for twenty months and in a very critical condition when he was brought back to the United States. Tubercle bacilli were reported in the sputum during his stay in the army hospital. He developed a bronchial fistula and continued to drain from a sinus in the posterior axillary line at the level of the tenth rib, right side. Another sinus anterior and a little above the main one also drained intermittently. On the left side the apex beat of the heart could be seen and felt at the level of the sixth rib, which had been resected. Patient was greatly emaciated and could get about with difficulty. The ribs on the right side from the fifth to the eighth were overlapping, firmly ankylosed and almost perpendicular. X-ray films after injection of the sinus with lipiodol showed a cavity two by four centimeters communicating with a similar cavity more external. The picture shows the lipiodol entering a bronchial fistula from which it was aspirated into the left lung, which appears normal.

**Treatment.**—The fifth, sixth, seventh, and eighth ribs, which were ankylosed to one another and to the angle of the scapula, were resected by means of a Gigli saw in one piece. This permitted the cavity to collapse. Both the sinuses and the bronchial fistulae promptly closed and have remained closed. Patient's general condition is much improved.

**Comment.**—We are now doing a modified thoracoplasty for these long-standing cases of empyema instead of the skin flap method. Several ribs are resected well back toward the paravertebral line, and as many ribs as necessary to secure obliteration of the empyema cavity are resected. This is not so certain a cure, but it leaves less scar and is a simpler procedure.

65 North Madison Avenue.

#### DISCUSSION

CHARLES M. FOX, M. D. (910 Medico-Dental Building, San Diego).—Doctor Lockwood has presented a very interesting group of cases and in the detailed reports has clearly demonstrated his ideas of the proper handling of these patients. As he states, most of the cases of nontuberculous chronic empyema are due to faulty or inadequate care in the early stages. The operation of draining the pleural cavity is regarded as such a simple procedure that almost anyone feels competent to perform it. Among general practitioners as a whole there is no clear understanding of basic pathology and no clear understanding of the methods to be employed in the individual case. An opening through which pus will drain is often regarded as sufficient. The question of open or closed method, irrigation, removal of tubes, blowing exercises, etc., all most important, are neglected. My experience with patients coming to California on account of this condition closely parallels that of Doctor Lockwood's. Frequently removal of the tube with or without blowing exercises is all that is necessary for a cure. In persistent cases I have used skin flaps many times after failure of the lung to expand and meet the chest wall. Dr. Emil Beck, formerly of Chicago, now living in Berkeley, first brought this method to the United States from Brauer's Clinic many years ago—I believe around 1912—and while it clearly seemed to fill a long-needed want the method was not used extensively until some time later. More recently I have done as Doctor Lockwood has described and have used instead of the skin flap method a thoracoplasty, making a sufficiently extensive resection to produce the desired result. This can be done easily, quickly, and with relative safety. If the general practitioner can be made to realize that early intelligent treatment is necessary in this frequent complication and that a little extra study during the acute period will be rewarded by a prompt recovery, the need for extensive surgical procedures will be nil.



EMILE HOLMAN, M. D. (Stanford University Medical School, 2398 Sacramento Street, San Francisco).—Doctor Lockwood's instructive cases illustrate beautifully the principles underlying the cure of a chronic empyema. When not associated with a bronchial fistula or the retention of a foreign body, such as a drainage tube, the cavity of a chronic empyema fails to heal because its walls are composed of rigid tissues which cannot collapse. An abscess cavity in the soft parts of the thigh heals because its walls collapse and can adhere to each other from the bottom up by the deposition and contraction of fibrous tissue. In a chronic empyema a rigid chest wall forms one wall of the cavity, a thickened and rigid visceral pleura forms the inner wall of the cavity and often an excessively thickened and rigid parietal pleura merges with the visceral pleura to form the top and sides of the cavity. The rigidity of these various structures prevents collapse of the walls of the abscess cavity, and the enclosed pleural space continues to form and discharge pus. This space has been termed a "dead space" and corresponds accurately to the "dead space" in an osteomyelitic cavity which, too, persists as a chronic process because its walls cannot collapse.

To obliterate such a pleural dead space, either one of two things must happen: (1) the lung must be liberated by removal of the thickened visceral and parietal pleurae resulting in a reëxpansion of the lung and reapproximation of the walls of the cavity; or (2) the rigidity of the chest wall must be eliminated by resection of its bony structures, the ribs, and the thickened parietal pleura. These two latter procedures must be sufficiently extensive to permit the chest wall to cave in and become adherent to the visceral pleura. Prompt healing occurred in two of Doctor Lockwood's cases when skin was applied directly to the visceral pleura. In planning operations for the cure of a chronic empyema, it is highly important to provide for complete collapse of the walls of the abscess cavity by an adequate removal of the overlying ribs and thickened pleura.

It should also be borne in mind that in the treatment of acute empyema the development of such a dead space with rigid incollapsible walls should be avoided by (1) complete and dependent drainage and (2) reëxpansion of the lung before it is moored in place by excessively thickened visceral and parietal pleurae, a thickening which in the first place is usually the result of pooling of pus incident to imperfect and inadequate drainage.

The presence of a bronchial fistula in addition to the chronic empyemic cavity requires a more extensive mobilization of the chest wall by resection of ribs not only immediately overlying the empyemic cavity, but also of one or more ribs adjacent to the cavity, permitting relaxation of the thickened pleura that moors the walls of the bronchus to the chest wall. The healing of a bronchial fistula depends upon sufficient relaxation of the fibrous tissues holding the bronchus open to permit closure by cicatricial contraction, which is the normal process of repair. This required relaxation is dependent usually upon an adequate mobilization of the chest wall.

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CLARK L. ABBOTT, M. D. (622 Wakefield Building, Oakland).—Doctor Lockwood has contributed another very instructive paper to the subject of thoracic surgery, in which he has been so deeply interested, and has added so much to our available knowledge in the rapid advancement of its surgical technique.

The paper is intended in most part as a portrayal of a series of diverse clinical conditions and the use of extremely good clinical understanding, surgical judgment, and skill. However, much is said in a few introductory words, and the subject demands a thorough understanding.

There is no field of surgery with a wider clinical, pathological, and surgical diversity of conditions. The surgeon must accurately gauge his patient's margin of safety. The etiology of the pathology present must

be carefully investigated and a most detailed examination made by all modern methods so as to obtain all possible knowledge of extent, direction, location of the cavity or fistula, and the structures involved. The objectives are safety, restoration of vital capacity, and healing of the wound with a minimum of deformity.

I feel we must be somewhat guarded in the statement, frequently heard, that our chronic empyemas of today are due to improper treatment. We know that it has been the conservative treatment of the past that has let the acute empyemas become chronic empyemas, but it has also materially lessened the death rate.

After preparatory treatment by sodium luminal and morphin sulphate, anesthetize with novocain, blocking the regional nerves with local infiltration, and using as little gas or ether as is needed. During operation, observation by a competent assistant of the patient's respiratory and circulatory equation is needed, the anesthetic always being stopped at a systolic pressure of ninety millimeters. The various steps in an operation are the following:

Adequate incision for good drainage;

The removal of all foreign bodies such as bone sequestrum of involved ribs or possible débris of former treatment or injury;

Cauterization or ligature invagination of bronchial fistulae;

Sterilizing and chemical decortication with Dakin's solution or gentian violet.

Possibly blood transfusions from a convalescent patient. The Empyema Commission has stated that their very large series showed 100 per cent *Streptococcus hemolyticus* infections with whatever other bacteria that may be present.

Then follow by the most energetic postoperative general hygienic measures. To obtain pulmonary expansion bottle blowing is usually instituted. I have found, however, that coughing under guidance is more effectual.

Under this procedure most patients will be cured and many of the others will show great reduction in size of cavity and a much better prepared patient for further procedure.

Doctor Lockwood in detailing the steps of the radical operations depicted has shown an open mind. Principles and not methods guided him. He drained hidden cavities; closed bronchial fistulae; decorticated the nonexpanding lung; collapsed the chest wall; after which soft tissue was implanted and, when necessary, direct epithelialization obtained. He obtained most excellent results. He did multiple operations whenever advisable in the interest of safety.

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DOCTOR LOCKWOOD (Closing).—I am indebted to the discussers for their elucidation of some points not covered in my paper. Doctor Fox emphasizes the importance of intelligent treatment in the acute cases as a means of avoiding later deforming operations, I fully agree with his statements.

Doctor Holman in his usual concise manner has made clear the mechanics involved in the chronic empyema cavity and has shown how the obstacles are to be overcome. Both in the obliteration of old empyema cavities and in compression of the lung for tuberculous cavities and the various types of pulmonary suppuration, nature has pointed the way in the increased obliquity of the ribs, the depressed intercostal muscles, and the displacement of the heart by adhesions. Doctor Abbott has brought out the important rôle played by the *Streptococcus hemolyticus* in empyema and the importance of conservatism in this type of case. During the war I observed many hundreds of these cases and saw the disastrous results which followed early drainage. As my paper dealt only with the chronic cases, I did not attempt to discuss the treatment of the various types of acute empyema.



## TYPHOID-PARATYPHOID VACCINE IN OCULAR INFLAMMATIONS\*

### REPORT OF CASES

By HAROLD F. WHALMAN, M. D.  
Los Angeles

WHILE the use of typhoid-paratyphoid inoculations as well as the use of other foreign proteins in the treatment of local inflammatory conditions is not at all a new subject, it was felt that the presentation of the following eye cases treated by the intravenous use of typhoid-paratyphoid vaccine was justified from the standpoint of stimulating local interest in this valuable therapeutic measure.

### COMMENTS ON THE LITERATURE

Ichikawa, Kraus, and Gay treated typhoid patients with typhoid vaccine injected intravenously and observed a sudden drop of temperature and frequent improvement in the general condition of the subject. Miller at Cook County Hospital gave two thousand injections in cases of typhoid and various other conditions with improvement. Peterson also made observations of this sort, and soon various substances were tried, including albumoses, leukocytic extract, gonococcus vaccine, normal serum, etc.

In 1912 Wagner von Jauregg of Vienna noted that patients with general paresis were benefited by attacks of intercurrent disease, and found that tertian malaria was the most promising with its intermittent swing of temperature.

Müller and Thanner then tried milk injections in gonorrheal ophthalmia and observed a distinct benefit from this treatment. It was noted that milk injections were quite specific in acute inflammations of the conjunctiva, but not so decidedly effective where the deeper structures of the eye were involved.

The most outstanding and convincing work in the use of foreign proteins in the treatment of eye diseases, both as to results and methods of use, was accomplished during 1919 to 1927 by Harvey Howard, who was then in charge of the department of ophthalmology at Peking Union Medical College. He made use of dilutions of typhoid-paratyphoid vaccines and injected them intravenously.

### TECHNIQUE OF INJECTIONS

The dilutions were made by taking stock typhoid-paratyphoid vaccines and diluting them in the following manner: To one cubic centimeter of vaccine add nine cubic centimeters of normal saline. This may be called solution No. 1. To one cubic centimeter of solution No. 1 add nine cubic centimeters of normal saline. This is solution No. 2, which is a 1-100 dilution of the stock

vaccine. The stock vaccine contains per cubic centimeter:

1,000,000,000 killed typhoid organisms  
750,000,000 killed paratyphoid A  
750,000,000 killed paratyphoid B

which equals 2,500,000,000 organisms. Hence, one cubic centimeter of solution No. 2 contains 25,000,000 organisms. The initial dose for an individual of 150 pounds in fair general health is 25,000,000 organisms. One cubic centimeter of solution No. 2 is diluted with sufficient normal saline to make five to ten cubic centimeters of solution for injection. The final solutions, as well as the stock solutions, must at all times be clear and free from contaminations. Solutions No. 1 and No. 2 can be kept on ice for a time, seldom over two weeks.

### REACTIONS

*Systemic.*—About one-half hour to one hour after injection the patient develops a chill. During the chill there is a lowering of the systolic blood pressure and a rise in the diastolic. There is also a leukopenia. Within the next two to three hours, the temperature rises to 101 or 103, occasionally to 104 degrees; there is a leukocytosis; the blood pressure returns to normal. The peak is generally reached about four or five hours after injection. Then there is a drop of about an average of one and one-half to two degrees in about two hours, followed by a slow secondary rise and a fall by lysis within twenty-four hours, occasionally lasting forty-eight hours. The leukocytosis and the relative increase of polymorphonuclear cells varies directly as the temperature. The interval between doses depends upon the result obtained; generally a three-day interval is selected, but temperature should be normal before repetition.

*Focal.*—Howard points out that in the intravenous use of typhoid a focal reaction of the diphasic type such as is observed when milk injections are given intermuscularly is not present, or at least is practically inconspicuous, and this has been our observation in most of the cases.

*Results.*—Howard presents sixty-two cases of great variety, including acute and chronic inflammations of the uveal tract, various forms of keratitis, corneal ulcers, retrobulbar neuritis, gonorrheal ophthalmia, traumatic cataract, vitreous opacities, with improvement in all but one case of corneal ulcer, one case of chronic iridocyclitis, and in those cases of optic atrophy which he treated.

### THEORIES OF ACTION

There are undoubtedly several factors responsible for the improvement:

1. We know there is an increase of the blood antibodies.
2. There is a fever produced, and we know that for the gonococcus the optimum temperature is 36.5 to 37 degrees centigrade for cultures. A sudden rise to 39 degrees centigrade results in death of the culture.

\* From the Eye Services of Doctors George H. Kress, George W. McCoy, and William A. Boyce at the Los Angeles County General Hospital, Unit No. 1. Reported with their permission.

\* Read before the Eye and Ear Section of the Los Angeles County Medical Society, May 5, 1930.



3. There may be a sudden flooding of the lymph spaces by antibodies after the permeability of the capillaries has been increased following a protein shock.

4. The leukocytosis is probably an important factor.

5. The opsonic index of the blood is raised.

6. There is no direct action on the causative agent as with specific antitoxins, but there is an indirect stimulation producing a pronounced action of the body defense mechanism.

At the Los Angeles General Hospital we have treated twenty-one cases during the past eighteen months by the method outlined above. We do not use it routinely, perhaps not even so often as we might, but have reserved this measure for those cases in which we feel the eye is dangerously involved. Some of the patients had been treated for several weeks by other physicians, who had used the usual local measures without success.

#### REPORT OF CASES

CASE 1.—A white, male, age seventy-three. Admitted April 30, 1929, complaining of itching, burning, tearing, photophobia and pain in eyeball for six months. He was treated at a local clinic for two weeks, became worse and was then referred to Los Angeles General Hospital, where a diagnosis of acute exacerbation of chronic trachoma with pannus on both corneae and some erosion of epithelium on the right. The tarsal plates were scarred and atrophied. The Wassermann and Kahn tests were four plus. Local treatment for the eyes and general treatment for lues were instituted. For six days no improvement was noted, so it was decided to start him on the non-specific protein therapy. In the first injection 25,000,000 organisms were given intravenously. There was a good general reaction, but the local condition remained stationary. Five days later 40,000,000 bacilli were injected and there was a good reaction systemically, but no local improvement noted until three days later, when they appeared to be much improved. Again they remained quite stationary for about four days and a third injection was given, 80,000,000 organisms. This was followed by rapid improvement, and eleven days later the acute pannus had receded, leaving only the atrophic vascular remains. The patient was discharged seven weeks after entry with condition arrested.

CASE 2.—White, male, age forty-nine, had a cataract extraction by the combined method, left eye, on March 28, 1929, and six weeks later developed an acute phlyctenular keratitis. General examination was negative, tonsils had been removed, sinuses were negative, no focus could be found. Here 25,000,000 organisms were given intravenously and the next day there was marked improvement. He was discharged a week later with condition arrested.

CASE 3.—White, female, age forty. This patient gave a history of having been hit in right eye with an olive pit three weeks previously. Stated that she had no symptoms until two days before coming to clinic, when her vision began to blur. Examination showed an area of deep infiltration in the center of the cornea; the iris was dull and there was marked circumcorneal injection. Local treatment was instituted and the same day 25,000,000 typhoid-paratyphoid organisms were given. There was improvement in the inflammatory reaction the next day, and the case progressed slowly. Five days later 50,000,000 organisms were given. Reaction was rather severe,

and patient suffered considerable headache. Her temperature reached 104. The third injection was, therefore, cut to 75,000,000 instead of doubling the previous dose. The patient was discharged shortly after the third injection with inflammation subsided, and some remaining opacity.

CASE 4.—White, male. Six weeks previous to entry he incurred a corneal abrasion of his right eye from a fall through an orange tree. He was treated by a local eye, ear, nose, and throat physician since the day of his accident, but condition slowly became worse. The right eye contained some thin stringy mucous secretion; there was chemosis of the bulbar conjunctiva. The vessels in the lower quadrant extended to the margins of a deep crescentic corneal ulcer which was about three millimeters at its greatest width and six millimeters long. In the center it had eroded to Descemet's membrane, which glistened through a place about 1.5 millimeter in diameter. The remainder of the cornea was opaque and rough, obscuring details of anterior segment of the eye. Vision was restricted to form perception. Local treatment was instituted; morphin was necessary to control pain. A conjunctival flap was advised, but patient refused, so he was started on a course of typhoid-paratyphoid injections. About 25,000,000 organisms were used for the first injection and the next day the chemosis of the bulbar conjunctiva had receded, and the pain was greatly reduced. Three days later 50,000,000 organisms were given. The ulcerated area was very thin, but not perforated, and the epithelium was beginning to grow over. A third injection was given following which the area completely healed and the depression soon began to fill in. Subsequent local treatment with dionin and yellow oxid of mercury finally resulted in clearing of the cornea to the extent that 20/50 vision had been restored at the last visit.

CASE 5.—White, female, age seventeen. This patient had a shallow ulcer, 1.5 millimeter in diameter, located in the pupillary area of the right eye. She was treated with the thermophore at 150 degrees Fahrenheit for one minute and the ulcer healed. She returned five months later with an area of deep infiltration in center of cornea which had broken down and ulcerated. It was thought too deep for the thermophore, so typhoid vaccine, 25,000,000 organisms, was given and the accompanying inflammatory signs began to clear. Three days later 40,000,000 organisms were given. The ulcer was curetted to Descemet's membrane, a pressure bandage applied, and the lesion healed.

CASE 6.—White, male, age sixty-nine. The patient stated that he was struck in the right eye with a tree limb three weeks previous to entry. He had been treated during this time by another physician, without relief. Examination revealed a dilated pupil with incarceration of the iris, and dislocation of the lens downward into the vitreous beyond the ciliary body. The eye was sensitive to light and very painful. The tension was minus two; general examination was negative. He was given 25,000,000 organisms and the next day his photophobia and pain was decreased. He was discharged with a quiet eye, but the vitreous was full of opacities of the heavy stringy variety.

CASE 7.—White, male, age twenty-three. Presented himself for examination, complaining of photophobia, lacrimation, and a feeling of tenseness in the eye for two days. The pupil was small and spastic; the iris was dull; the circumcorneal vessels were injected. The vitreous showed some faint opacities. A diagnosis of acute uveitis was made, local treatment instituted, and 25,000,000 organisms were given. The



temperature reached 104.4 degrees and the patient complained of headache, insomnia, and backache so pronounced that morphin was given to put him at rest. The next day the eye was greatly improved and in seven days local treatment was discontinued. An infected tonsil tag, the only focus found was subsequently removed. There has been no recurrence in one year.

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CASE 8.—White, male, age twenty-three. Admitted with an acute follicular conjunctivitis. Smears were negative for bacteria. He had been treated for one month without improvement. The first injection of typhoid organisms resulted in improvement and two more completed resolution of the process without local treatment other than atropin and soothing ointments.

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CASE 9.—White, male, age nineteen. This patient suffered a severe ulcerative keratitis involving both corneae: one lesion on right cornea, four millimeters in diameter; three ulcers on left cornea, two to three millimeters in diameter. Dense infiltration and panus surrounded the lesions. General examination negative except for chronic tonsillitis. Treated locally, tonsils were removed and there was marked improvement, but resolution was slow, so two injections of typhoid vaccine were given and in five days healing was complete. He was discharged with a visual acuity: 20/40, right eye; 20/100, left eye.

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CASE 10.—White, male, age forty-one. This patient had a case of old trachoma with corneal ulcer in left eye. He was given four injections of typhoid vaccine intravenously, and the ulcer healed.

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CASE 11.—White, female, age thirty-eight. This patient was operated for an old, tough capsular cataract, the result of a penetrating injury with a needle during childhood. The operation was followed by a low-grade iritis, which was treated with atropin locally and salicylates internally. Progress was slow, so patient was given 25,000,000 organisms and after a good systemic reaction the eye quieted in a few days.

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CASE 12.—White, male, age twenty-eight. He was admitted to the hospital with an old trachoma; tarsal cartilages had been removed. On admission he had a subacute pansinusitis with flare-up of the eyes. He was undernourished; Wassermann was negative; dental examination was negative. He was started on a series of injections with immediate improvement after first injection and arrest of eye condition after third injection. Treatment of the pansinusitis was under way after second injection and continued for some time after. He returned to the eye clinic in five months with another acute exacerbation of eye condition, recurrence of panus, and a corneal ulcer. Another course of intravenous injections of the vaccine was given, a series of five being required before the condition was arrested. The ulcer was healed after the second injection. The eyes have been quiet for six months.

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CASE 13.—White, female, age fifty-four. A debilitated little old woman, trephined two years previously, came in with a late infection of the operated eye, consisting of an iridocyclitis with secondary elevation of the intra-ocular tension. A series of intravenous injections was started. Two treatments showed that this method was impracticable. She was emaciated and the fever produced burned up what reserve she had, resulting in increased general weak-

ness and no response from the debilitated tissues to stimulation. Hence there was no improvement whatever in her eye condition after two injections and the treatments were discontinued because of this and her general condition. An attempt was made to improve her nutrition, with some success, and a second series was tried, starting with 12,000,000 organisms, but two injections sufficed to show that she could not stand further fever reactions. A trephine was done below and the facilitated lymph flow improved the condition temporarily, but in four weeks exudation increased and filled the pupillary area.

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CASE 14.—White, male, age thirty-eight. This patient was admitted with inflammation of the left eye, consisting of marginal blepharitis, chronic conjunctivitis, and a marginal crescent-shaped ulcer on the temporal side, measuring six millimeters in length and three millimeters at its greatest width. General examination was negative except for chronic tonsillitis. He was given the usual dose of typhoid vaccine the day of his admission, and improvement was noted the next day. In five days the ulcer had healed without further vaccine therapy. His tonsils were then removed. In two months he returned with a recurrence, and after two injections the ulcer was healed with no recurrence in the past three months.

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CASE 15.—White, male, age twenty-seven. A large central ulcer, six millimeters in diameter with a circle of infiltration which stained by absorption, occupied the center of this man's cornea. Local medication was started and a day later the typhoid vaccine was given; three days later a second injection, and in three days more the ulcer was healed. There has been no recurrence in one year's time.

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CASE 16.—White, male, age sixty-two, in excellent health. Several weeks following a cataract operation a low-grade uveitis developed, the vitreous slowly filled with small opacities and finally a secondary glaucoma developed. All possible foci of infection had been taken care of previous to operation and no further evidence could be found. A series of typhoid injections were given, without improvement.

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CASE 17.—White, male, age forty-five. In this man an old trachoma flared up, complicated by a small corneal ulcer. One injection sufficed to heal the ulcer, and local treatment was continued for the trachoma. In eight months he had a recurrence with a large, deep ulcer, about three millimeters in diameter, with anterior synechia. Two injections of typhoid were given and the ulcer healed, with an adherent leukoma as the end result.

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CASE 18.—Colored, female, age nineteen. This patient came to the hospital with both corneae involved. The right was deeply infiltrated and there were several small ulcers on the surface. The left cornea was infiltrated, but none of the areas had broken down to ulceration. She was hospitalized and given 25,000,000 organisms. Her temperature reached 103. The next two days showed a very striking improvement in her condition. After two injections the ulcers had healed and the inflammation almost entirely subsided. A third treatment was given and the patient was discharged with the condition arrested.

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CASE 19.—White, male, age sixty-two. In this man striate keratitis persisted for fifteen days after cataract extraction and did not show signs of improving,



so 15,000,000 typhoid organisms were given intravenously and in two days the cornea cleared. His visual acuity or refraction was 20/30.

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CASE 20.—White, male. This patient suffered a persistent marginal blepharitis complicated by a secondary pyogenic infection, and superficial keratitis in left eye. He was treated locally for two weeks and finally 25,000,000 of typhoid organisms were given and the inflammation subsided in three days.

✓ ✓ ✓

CASE 21.—Colored adult female. To approximate a lacerating wound of the upper lid, linen stitches had been used on skin and conjunctival surfaces, and abrasion of the cornea followed by infection and ulceration with hypopyon resulted. She was given 25,000,000 organisms; the cornea healed and the hypopyon absorbed within a few days.

#### INDICATIONS (FOUND EFFICACIOUS, ACCORDING TO HOWARD)

1. Acute or subacute infections of the conjunctiva when the disease was unusually severe or prolonged.
2. Ulcers of the cornea and all forms of keratitis.
3. Uveitis, iridocyclitis, and iritis, no matter what cause, with the exception of tuberculosis.
4. Optic neuritis, especially the retrobulbar type and those apparently due to focal infection.
5. Edema of the retina, retinal hemorrhages; and exudative chorioretinitis.
6. Hemorrhages and exudates from the retina or choroid into the vitreous; also acutely developing vitreous opacities, particularly those of the massive dust-like type.
7. The absorption of soft lens material following traumatic cataract or discission of a congenital cataract, or following a cataract extraction in which considerable lens substance was left behind.
8. Penetrating wounds of the eye in order to prevent endophthalmitis or panophthalmitis (an exceedingly important use).
9. Secondary glaucoma, to reduce intra-ocular tension, especially when associated with an inflamed iris and a turbid aqueous.

#### CONTRAINDICATIONS (Howard)

1. The presence of more than one-half degree centigrade of temperature above normal.
2. Low vitality.
3. Any condition in which the added strain occasioned by a protein shock might not be well borne by the heart.

727 West Seventh Street.

#### COMMENT

It is to be emphasized that the method is not curative and does not relieve us of the obligation of eliminating foci of infection, nor are we justified in neglecting such local treatment as the case may require, such as atropin, antiseptics, ointments, etc. Subsequent local treatment may be required.

## MEDICAL MILITARY PREPAREDNESS\*

By THOMAS W. BATH, M. D.  
Reno, Nevada

ONE year ago a brief report was made and some instances of medical military unfitness that this Government experienced in the World War were cited.

Today, following considerable correspondence with such men as the editors of the *Military Surgeon*, of *Foreign Service*, of the *American Veteran*, of *American Legion*, and of the *Journal of the American Medical Association*, and with Colonel Taylor, editor of the *Texas State Medical Journal*, and with the Surgeon-General of the United States Army, I think I have a few more practical ideas to place before you on the important matter of medical military preparedness.

Prior to America's entrance into the World War, sensing the coming storm, a General Medical Board was created and competent men appointed whose duty it was to make a general survey of medical men, hospitals, and medical equipment. Also some fifty medical societies were called upon to suggest specialists for work along their lines.

While this committee did everything in its power to make medical preparation for war, the time was too limited to work the medical personnel of a nation into an organization that could promise much results. The creation of a Medical Officers Reserve Corps in 1910, of which I became a member in 1911, created one rank only, that of first lieutenant. But there was no effort made to train these Reserve Corps officers, and matters simply slid along without care or concern to the average physician until he was rudely awakened by the entrance of the United States into the World War.

We went into this World War practically without trained men or military or naval equipment. It is true we had a small army and navy and a National Guard, but we had neither submarines nor aircraft, and were destitute of the material needed to equip a considerable army and navy; and to create an air force we had neither trained men nor material. When one considers that in the brief time which the war lasted it is one of the modern miracles and a tribute to our Government that such gigantic tasks of organization, training, and equipment were accomplished in so short a time.

To muster and equip an army of over four million men, to build up a naval personnel, to build up an aircraft force, to transport over two million men 2700 miles over seas through enemy zones, to provide food, shelter, clothing, and equipment in so short a time is, without exaggeration, one of the great events of our history. As I said a year ago, we, like the British, muddled through it somehow. Our initiative and inexhaustible resources made us winners, but at fearful financial cost of nearly forty billions of dollars

\* Read before the Nevada State Medical Society at Ely, Nevada, September 18 and 19, 1931.

and a needless sacrifice of tens of thousands of men. It left us a heritage of sick and enfeebled men that, had we possessed from the outset better and more medical supervision, better and more sanitary camps, this enormous expense of almost one billion dollars per year which we are now paying, plus a national loss of tens of thousands of men in hospitals for rehabilitation—much of this loss we could have prevented for our country.

We have a nation of about 125,000,000 people in these United States; we have a homeland of nearly 3,000,000 square miles. We have many additional territories, such as Alaska, Hawaii, Philippines, Guam, Samoa, Canal Zone, Porto Rico, and the Virgin Islands, all to be protected and all to be defended in event of war.

Our national wealth is estimated at three hundred and sixty-four billions, our yearly income at ninety billions, and our national debt at seventeen billions. Out of all this our per cent of expenses from the national income of ninety billions of dollars is put at 13 per cent. Compared with Great Britain's expense of 22 per cent and France's 33 per cent, with infinitely less national wealth, we should realize that with a numerically insignificant army and navy we are not doing our part as a nation to build and maintain a constructive preparedness such as the world's unsettled political conditions require.

Now for the medical part of the task of preparedness. Let us see what might befall us if we were to engage tomorrow in another war. Should the United States again become involved in war, it would not be with one single nation. The alliances formed in the World War on both sides show well enough the trend of the future. And a future war will not be fought by men alone. But the next war will tax every resource of man and woman power, including even the boys and girls of the nation.

And it is to efficiently supervise the medical needs of millions of men and women that your services, fellow physician and surgeons, would be required.

Upon declaring war the Draft Board would instantly go into action. The polling lists of the nation would show that about 10 per cent of our 125,000,000 people were men from twenty to forty-five years of age. This would represent the enormous total of twelve and one-half million men of military age to be examined. Of the 156,440 physicians in the United States, the Government would need the services of at least 60,000 physicians at once. The Government now has in the army, navy, public health, and Indian service about 3500 medical men. There are 18,731 physicians in the medical reserve having ranks from first lieutenant to brigadier general. There are 1385 medical officers in the National Guard. All told, we have approximately 23,600 medical men qualified in military affairs ready for duty. But to look after 12,500,000 men for first and second examinations, to eliminate the fit from the unfit, to have enough medical help in times of epidemics or in battle, so that the sick may not be neglected or the wounded die from lack of prompt

attention, we need 50,000 more physicians than what we have. Sixty thousand or even seventy-five thousand trained medical officers would be the nation's most economical investment. When efficiently organized into medical and surgical units from the front line to the last hospital in the rear, it would lessen the death rate, reduce the number of sick days, and save to the homeland incalculable loss of lives and treasure.

Citizen doctors, have you given these important matters the thought they deserve? Have you ever felt that the country you are fortunate to live in, enjoying comfort and wealth, that to this country of yours you owe a most serious duty to help preserve and defend it from all enemies? If you have not, it is high time for you to think that the responsibility of the Government is not alone in the hands of its officials, but with you.

To create an Officers Reserve Corps we must have propaganda from the War Department. For this purpose I believe that the surgeon-generals of the army and navy or their deputized representatives should solicit places and be represented on the programs of all state and national, and even sectional, medical societies. Also that the army and navy representatives should be present at all medical college graduation days and solicit the young M. D.'s for the Reserve. The presence of these distinguished visitors would be welcomed at medical societies, and their presence would contribute to the dignity of the gatherings.

In turn, there should be a Standing Military Committee in every state medical society to co-operate with the county societies whose duty it should be to keep an up-to-date list of all medical men of military age, and to check up on their moral character, their physical fitness, and professional specialties. These lists could be available at all times to assist the surgeons-general of both army and navy. So that men should be selected to work along lines in which their civil practice best fitted them; square pegs for square holes, and round pegs for round holes.

Nevada, the smallest state in population in the Union, has but 90,000 people, including about 5500 Indians. We have listed in the directory of the American Medical Association 131 physicians. Of this number, fifty-four doctors are fifty years of age or under. Seventy-seven are over fifty years of age, some of whom would be available for certain kinds of medical military duty. Of the fifty-four men fifty years of age and under, eleven are surgeons, two are eye, ear, nose and throat specialists, one is a neuropsychiatrist, two are x-ray men, one is an obstetrician and gynecologist, and one is a naval officer. This makes eighteen specialists and thirty-six general practitioners.

If these fifty-four men were called to military duty the remaining seventy-nine could look after the medical practice of Nevada, both in special and general work.

The same proportion would apply to all our states and territories. How easy it would be to compile such a list. The local secretaries would know every man's medical qualifications, and in



the event of war there would be no confusion or misplacement of men to fill duties for which they were not fitted. Surgeons would be surgeons, physicians would serve as physicians, and so on through the entire medical personnel. For this purpose every state medical society should have a Standing Military Committee.

This simple paper is the desire of a patriotic heart. It is the result of experience learned in the Cuban War and in the Philippine insurrection, and from sixteen months overseas in the World War. If we could enthuse the members of our profession to a sense of their responsibility to their Government we would have fifty thousand additional medical men applying for work in the Reserve Corps. With such a number of men having some idea of military medical duty a great burden would be lifted from the heads of our Government and it would assure the nation, not only the saving of colossal treasure, but that more valuable saving—the tens of thousands of precious lives. This active interest in the military well-being of the nation manifested by its medical men would be one of the assurances of success to the flag that has never yet been lowered in defeat.

Reno, Nevada.

ARTERIOSCLEROTIC HEART DISEASE\*

REPORT OF CASES  
By L. E. VIKO, M.D.  
Salt Lake City, Utah

DISCUSSION by W. R. Tyndale, M.D., Salt Lake City, Utah; William J. Kerr, M.D., San Francisco; G. Gill Richards, M.D., Salt Lake City.

DURING the greater part of the nineteenth century physicians thought of heart disease as a single disease entity with a common symptomatology and a uniform treatment. Following the discovery of the stethoscope by Laennec in 1816, the physical signs of valvular disease so dominated the minds of the profession that auscultatory signs become almost the sole criterion of the diagnosis of heart disease; myocardial disease without valvular involvement frequently passed unrecognized unless there was obvious enlargement of the heart. As there was no knowledge of etiology, treatment was entirely symptomatic. Pathologic study gradually showed there is not one but many diseases of the heart and slowly the clinician became able to distinguish certain of these, to recognize that their course and outlook were different and that they resulted from different causes. This separation of disease made diagnosis more easy and initiated a more rational therapy.

But even today such progress has been largely confined to those diseases of the heart with endocardial or pericardial involvement. In most textbooks of medicine the chronic diseases of the myocardium are still considered as a whole and

TABLE 1.—Clinical Types of Heart Disease

|                                                                           |        |
|---------------------------------------------------------------------------|--------|
| I. Heart Diseases of Known Etiology and a Different Clinical Picture..... | 50%    |
| 1. Rheumatic valvular heart disease.....                                  | 15-45% |
| (Rheumatic pericarditis)                                                  |        |
| 2. Syphilitic heart disease.....                                          | 1-20%  |
| 3. Congenital heart disease.....                                          | 1%     |
| 4. Acute bacterial endocarditis.....                                      | 1/2%   |
| 5. Subacute bacterial endocarditis.....                                   | 1/2%   |
| 6. Tuberculous pericarditis.....                                          | Rare   |
| 7. Traumatic heart disease.....                                           | Rare   |
| II. Acute or Subacute Myocarditis.....                                    | 1%     |
| III. "Chronic Myocarditis".....                                           | 50%    |
| Arteriosclerotic heart disease—cardiosclerosis—senile heart.              |        |
| Hypertensive heart disease.                                               |        |
| Hyperthyroid heart disease.                                               |        |
| Myxedema heart.                                                           |        |
| Heart disease associated with pernicious anemia.                          |        |
| Heart disease associated with diabetes.                                   |        |
| Heart disease associated with chronic lung disease.                       |        |
| Syphilitic myocarditis.                                                   |        |
| Heart disease of unknown etiology.                                        |        |

an attempt made to describe a common clinical picture. Again a dominant clinical picture—that of the greatly enlarged heart associated with hypertension—fills our minds and we fail to recognize other phases of the picture until the onset of decompensation or until a sudden and unexpected death shows us our error. Slowly we are beginning to realize that chronic myocarditis is not a single disease.

ETIOLOGIC CLASSIFICATION

At the present time certain of the myocardial diseases are being segregated upon an etiologic basis so far as our present knowledge permits. Some such classification as that shown in Table 1 is now in use in most American cardiac clinics. Already we are being repaid by a clearer knowledge of the clinical picture and course, and are approaching a rationale of treatment that is more than symptomatic. Such differentiation thus becomes of practical importance to every practicing physician.

SCOPE AND BASIS FOR THIS STUDY

It is the purpose of the present paper to attempt a clinical description of that type of heart disease now commonly termed arteriosclerotic heart disease and to point out some differences between this form and others of the myocardial diseases. It is of course obvious that in many cases that there may be more than one etiologic factor such as hyperthyroidism and a later arteriosclerosis or hypertension in early life and arteriosclerosis later. Such mixed etiology is not infrequent and confuses the clinical picture. For the sake of simplicity the present paper deals only with those cases where arteriosclerosis is considered the sole or principal factor.

The observations made are based principally upon a study of 1000 cases of heart disease of which 156 were classified as arteriosclerotic heart disease. Some reference will be made to some pathologic work done two years ago in England but the discussion is intended to be clinical rather than pathologic. Likewise reference will be made to other reports justifying the opinions expressed. As far as possible the outcome of the 156 cases has been determined. It is believed that the scarcity of autopsy reports on these cases is counterbalanced by the fact that a good percentage of

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these patients were followed personally over a longer period than is usually possible in reports from hospital cases.

Wyckoff and Lingg<sup>1</sup> have defined arteriosclerotic heart disease as that type occurring in patients with the signs of cardiac defect commonly associated with arteriosclerosis in the absence of nephritis with nitrogen retention, gout or diabetes. The American Heart Association<sup>2</sup> has defined the criteria for its diagnosis as general arteriosclerosis associated with arteriosclerosis of the coronary arteries; or evidence of fibrosis of the myocardium with or without the presence of congestive heart failure or the anginal syndrome; or coronary sclerosis, present without general arteriosclerosis. Unfortunately such definitions are not very informative from a clinical standpoint. They do indicate the pathology shown in this disease of the heart: coronary arteriosclerosis with or without myocardial fibrosis. To these findings there is often added coronary thrombosis with or without myocardial infarction and aneurysm.

That it is justifiable to consider these features as constituting a pathologic entity, the following considerations are presented. Cabot,<sup>3</sup> in his discussion of 1906 autopsies showing cardiac diseases, states that the cause of most cases of fibrous myocarditis and many, if not most, cases of angina pectoris is coronary sclerosis. Allen,<sup>4</sup> on the basis of autopsy material, has shown the very frequent associations of myocardial fibrosis and coronary sclerosis (51.2 to 85 per cent, depending on the degree of coronary narrowing). That, if the cases of syphilis be excluded, coronary thrombosis and myocardial infarction nearly always are due to coronary sclerosis has been shown by Allen<sup>4</sup>, Wolff and White<sup>5</sup>, Wearn<sup>6</sup>, Parkinson and Bedford<sup>7</sup>, and others.

#### PATHOLOGIC STUDY OF NINETEEN ARTERIOSCLEROTIC HEARTS

In a pathologic study of the hearts of nineteen consecutive deaths from coronary occlusion, the writer found coronary sclerosis the cause in twelve, syphilis in six and embolism in one.

Nathanson<sup>9</sup> has shown that there is a clinical picture corresponding to this pathology. So it seems justifiable to consider arteriosclerotic heart disease a clinico-pathologic entity. That there is a practical value in such consideration has already been suggested.

The relative frequency of arteriosclerotic heart disease varies in different parts of the country. The writer thinks that this variation may depend on the distribution of the population by ages.

#### AGE AND SUDDENNESS OF ATTACK CHARACTERISTIC

Arteriosclerotic heart disease, like general arteriosclerosis, is a disease of the older age periods. In only four did the first symptoms appear under fifty years of age, and in only thirty-eight did they appear under the age of sixty. The ratio of males to females was three to two. It is sup-

posed to be more frequent among mental workers and in urban life, but the series studied did not support this idea.

Thirty-three per cent of those known to be dead, died suddenly. Sudden death was considerably more frequent among these patients than in any other of the writer's groups of heart disease. To emphasize this, attention is called to Willius'<sup>10</sup> report of 330 patients who died suddenly of heart disease; sudden death was more frequent in the arteriosclerotic type than in any other except thoracic aortic aneurysm. Reuter<sup>11</sup> in Vienna considered the same question from the post-mortem angle. Of 1000 cases of sudden cardiac death coronary artery disease was found in 72 per cent.

#### ASSOCIATED CLINICAL SYMPTOMS

Clinically associated with the frequency of sudden death, was the high percentage of patients with arteriosclerotic disease who showed paroxysmal attacks of dyspnea, angina pectoris, or Stokes-Adams syndrome, with complete or relative freedom from all symptoms between such attacks. About one-third of the patients gave such history.

Another distinctive feature was the frequent total absence or usual paucity of diagnostic physical findings. Because of emphysematous lungs and the common absence of a visible or palpable apex impulse it was frequently difficult to determine heart size. In about half the number physical examination showed no enlargement. Even by roentgen-ray, ten failed to show enlargement. Usually the heart was only markedly enlarged if hypertension was or had been present. The frequent absence of enlargement has been emphasized by Miller and Weiss<sup>12</sup> and the parallelism between enlargement and hypertension by Cabot.<sup>3</sup> Organic valve defect was present in only ten instances. Murmurs were entirely absent in 57 per cent of the patients examined. When present, they were rarely of any diagnostic value. The heart sounds were of poor quality in 69 per cent. This finding appears to have some diagnostic value. Congestive failure was more often absent and when present was frequently slight even at death.

There was a relative infrequency of hypertension—in 46 per cent of the patients the systolic pressure was under 140; in 73 per cent it was under 160.

Syphilis, thyroid disease, marked chronic pulmonary disease, chronic nephritis with nitrogen retention, diabetes and pernicious anemia were absent.

That the electrocardiogram and x-ray examination were of great diagnostic value will be noted later.

Nathanson<sup>9</sup> studied the clinical and postmortem findings of 113 patients with arteriosclerotic heart disease. My observations agreed so well with his that I reproduce in tabular form the four clinical groups into which he separated his cases. It needs little comment.



| TABLE 2.—Clinical Types of Arteriosclerotic Heart Disease (Nathanson's Classification of One Hundred and Thirteen Patients) |          |            |                   |                          |                        |                    |                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------|----------|------------|-------------------|--------------------------|------------------------|--------------------|----------------------------------------------------------------------------------------------------|
| Type                                                                                                                        | Per Cent | Heart Size | Hypertension      | Attacks, Pain or Dyspnea | Other Cardiac Symptoms | Congestive Failure | Comment                                                                                            |
| I.                                                                                                                          | 37.2     | Normal     | Absent            | Present                  | Absent                 | Absent             | Diagnosis on symptoms. Death from angina.                                                          |
| II.                                                                                                                         | 2.6      | Normal     | Absent            | Present or Absent        | Present                | Present            | Congestive failure with small heart.                                                               |
| III.                                                                                                                        | 22.6     | Enlarged   | Present (usually) | Present                  | Absent                 | Absent             | Similar to I, but heart enlarged and hypertension.                                                 |
| IV.                                                                                                                         | 39.0     | Enlarged   | Present           | History                  | Present                | Present            | History of anginal attacks. Short duration. Death usually before much edema. Death usually sudden. |

Because it may be the only symptom, angina pectoris deserves more extended consideration. First, it should be emphasized that angina is a symptom and not a disease and, unfortunately, common usage has made it cover almost any precordial pain. It would be an excellent thing if its use could be confined to the pain of coronary artery disease. There were certain features of the angina pectoris of arteriosclerotic heart disease that usually served to distinguish it from the precordial pain of other heart diseases. In coronary artery disease the pain was more likely to be fatal, sharply paroxysmal and midline or lower sternal or epigastric. The facies and the sense of impending death were characteristic. The associated dyspnea was more subjective than objective. The signs of congestive failure were usually absent, pain often occurred at rest or during sleep as well as under exertion. It was relieved by nitrites, but not by digitalis, sedatives, or suggestion.

Heart pain associated with other diseases of the heart was less likely to be fatal, was usually more continuous, located higher in the chest and reacted more satisfactorily to digitalis than nitrites. The patient lacked the characteristic appearance of the coronary type and usually showed some other evidence of myocardial strain such as cyanosis, edema, or objective dyspnea. The pain of cardiac neurosis or intercostal neuralgia (the radicular syndrome) usually presented no difficulty in differential diagnosis.

REPORTS TO ILLUSTRATE VARIOUS CLINICAL FEATURES

Some of the clinical diagnostic features may be illustrated through several case reports:

CASE 1.—A man of sixty-one was admitted to the University College Hospital in London complaining of symptoms due to carcinoma of the rectum. The past and present history revealed no symptoms of heart disease. Physical examination showed no enlargement of the heart; the rhythm was regular, the sounds of fair quality. There were soft apical and aortic systolic murmurs, not characteristic. The blood pressure was 140/84. The presence of heart disease was not suspected. Five days after a colostomy the patient died suddenly without pain. Autopsy showed a heart weighing 450 grams (a heart

definitely enlarged). There was a fairly old aneurysm of the apical portion of the left ventricle. All the larger coronary arteries were markedly sclerotic with areas of calcification in the proximal parts of both left and right stems. There was slight atheroma at the commencement of the aorta and sclerotic calcification with fusion of the aorta valve cusps. The right coronary was completely occluded by a recent thrombus, the immediate cause of death. The left anterior descending artery was occluded by an organized thrombus. The occlusion of this vessel had resulted in the ventricular aneurysm. The microscopic pathology suggested that this was of at least several weeks' duration. The myocardium showed fibrosis. Despite the extensive and old pathology shown at autopsy the presence of heart disease prior to death had not been recognized by an examination made with average care. X-ray and electrocardiographic examination were not made.

✓ ✓ ✓

CASE 2.—A stock raiser, age fifty-five, came in November 1922 complaining of pain in the anterior mid-chest just to right of midline. The pain came only after exertion. At first it radiated to left arm, later it remained localized in the midsubsternal area. There was no dyspnea or palpitation, but when the pain occurred he belched much gas. Rest and nitrites relieved the pain. Between attacks he felt entirely well. On examination the apex impulse was not seen or felt, all heart sounds were weak. No enlargement of the heart could be made out. There were no murmurs. The rhythm was regular. The blood pressure was 150/80. The radial arteries were slightly sclerosed. The rest of the examination was negative.

X-ray examination (fluoroscopy and seven-foot plate) of the heart showed no enlargement except a prominent aortic knob with increased density. A diagnosis was made of arteriosclerotic heart disease with angina pectoris.

After a month's rest the attacks disappeared. Four months later he attempted to return to his occupation and had recurrence of his attacks. He then retired from business and had no symptoms.

I heard no more from him until January 1, 1930, when I had an urgent call and found him in an attack of coronary thrombosis from which he died in a few hours. His wife stated that he had been quite well until a few weeks before when after the purchase of a new home he walked up a hill to it twice each day. This walk always produced epigastric pain. A physician consulted said it was indigestion and prescribed accordingly, without relief. A week before his death the physician said the heart was affected and sent him to bed. But the attacks of pain still persisted at intervals until the final coronary occlusion.

In this record I wish to emphasize that the only diagnostic evidence was attacks of pain, weak heart

sounds, and the x-ray findings. The heart was not enlarged, there were no murmurs and no real hypertension.

CASE 3.—A business man of sixty-three complained of weakness, shortness of breath, and nocturnal attacks of dyspnea and cough for a year. Occasionally these attacks would be associated with precordial pain. On examination the apex impulse was not seen or felt; the rhythm was regular. In the sitting posture there was a soft apical systolic murmur. There were a few scattered râles in each lung, but no edema elsewhere. The heart did not seem enlarged. The radial arteries were moderately sclerotic. The blood pressure was 148/80. In the attacks the patient appeared in immediate danger of death, as there was an acute pulmonary edema. Fluoroscopy and an orthodiagram of the heart showed slight transverse enlargement and markedly widened dense aortic knob. The electrocardiogram showed intraventricular block and ventricular premature beats. (Premature beats seem of more prognostic significance in this type of heart disease than in any other.) The contrast between a dangerously ill patient and relatively negative physical findings were striking.

The x-ray and electrocardiogram gave definite evidence of heart disease. In this patient attacks of acute pulmonary edema were the predominating symptoms.

CASE 4.—A business man of fifty-five complained of dyspnea and precordial (apical) pain on exertion for two weeks. The pain did not radiate. For a week there had been slight edema of the ankles. Examination showed no enlargement of the heart; the sounds were of poor quality; the rhythm was regular. There was a soft apical systolic murmur. The blood pressure was 138/74. X-ray showed questionable enlargement of the heart and aorta. The electrocardiogram showed intraventricular block with small complexes and abnormal T waves. Under treatment, the pain ceased but the dyspnea persisted. The edema remained slight but persistent. About six weeks later after a heavy meal the dyspnea became acute, abdominal pain appeared and in a few hours the patient died. I wish to emphasize not only the minimal physical findings in this patient, but the fact that even the x-ray failed to show definite abnormality of heart size, and also the fact that though the patient showed congestive failure it was never marked and at the end the death was rather sudden.

CASE 5.—A housewife of seventy-four complained of attacks of fainting, weakness and palpitation for a year. There was some dyspnea. Examination showed a regular rhythm at 30 per minute. At the apex there was a rough, long metallic apical systolic murmur. The apex beat was forcible and diffuse.

The heart was moderately enlarged. Occasionally auricular beats could be heard between ventricular systoles. The blood pressure was 260/160, the radial arteries markedly sclerosed. During hospital observation there were several Stokes-Adams attacks. These finally disappeared under treatment, and the patient was discharged improved. Electrocardiogram showed complete auriculoventricular block. X-ray examination showed a markedly enlarged heart, wide aorta, and dense aortic knob. I wish to emphasize that in this patient, where there was marked hypertension, the heart was markedly enlarged and the apex impulse forcible. The systolic apical murmur was of the type suggestive of sclerotic changes in the mitral valve. Complete heart block and Stokes-Adams attacks are more frequent in cardiosclerosis than in any other type of heart disease.

CASE 6.—A man of sixty-eight in April 1922 complained for two weeks of attacks of pain across the chest and the epigastrium. There was dyspnea only with the attacks. Physical examination showed a slightly enlarged heart, a soft apical systolic murmur, diminution of the sounds at the apex but accentuation of the aortic and pulmonary second sounds. The rhythm was regular. X-ray and electrocardiographic examination were not made at this time. There was no congestive failure. The attacks of angina pectoris persisted for several months and gradually ceased. With their cessation there gradually appeared edema of the legs. An electrocardiogram at this time showed bundle branch block. In April 1923 marked alteration of the pulse appeared. The edema, enlargement of the liver and dyspnea gradually increased until death in June 1923. This case illustrates the fact that such patients may pass through an anginal phase and later die of congestive failure.

COMMENT

From the electrocardiographic standpoint it is to be emphasized that while there are no findings pathognomonic of arteriosclerotic heart disease that only five of the series in which electrocardiograms were taken showed an entirely normal mechanism. Intraventricular block, bundle branch block, and complete auriculoventricular block are more frequent in this form of heart disease than in any other. The same is true of abnormalities of the T wave. Thus the electrocardiogram in these cases is of more diagnostic value than in any other type of heart disease.

In Table 3 are presented some of the contrasts between the writer's cases of arteriosclerotic heart disease and hypertensive heart disease.

TABLE 3.—Comparison of Arteriosclerotic and Hypertensive Heart Disease

|                   | Arteriosclerotic Heart (156 cases)                   | Hypertensive Heart (98 cases)                                   |
|-------------------|------------------------------------------------------|-----------------------------------------------------------------|
| Age of onset      | Under 50 years 2.5%                                  | Under 50 years, 25.0%                                           |
| Sex               | Male, 61.0%                                          | Males, 17.0%                                                    |
| Pathology         | Coronary sclerosis-thrombosis<br>Myocardial fibrosis | Hypertrophy and dilatation<br>Myocardium otherwise normal       |
| Murmurs           | Absent in 57%<br>Soft if present                     | Absent in 36.0%<br>Loud                                         |
| Sounds            | Usually weak                                         | Usually loud                                                    |
| Apex impulse      | Usually not seen                                     | Usually easily seen                                             |
| Heart size        | Normal or moderately enlarged                        | Usually markedly enlarged                                       |
| Angina            | Frequent and characteristic                          | Infrequent and different in type                                |
| X-ray             | Absent or moderate enlargement<br>Aortic knob dense  | Left ventricular enlargement<br>Aortic knob normal              |
| Electrocardiogram | Intraventricular block<br>T wave changes             | Left axis deviation                                             |
| Type of death     | Usually sudden<br>Often from angina                  | Usually gradual<br>Usually from congestive failure or nephritis |



## TREATMENT

Discussion of the treatment of arteriosclerotic heart disease may be conveniently divided into treatment directed toward the arteriosclerotic process and treatment of the various symptoms, angina, congestive failure, Stokes-Adams attacks, etc. With the exception of the treatment of congestive failure it is difficult to evaluate any remedial agent employed.

Obviously as we know little of the etiology or arteriosclerosis, prophylaxis and treatment must be empiric. Probably the course of the arteriosclerotic process may be delayed by reducing mental and physical strain of individuals approaching the age of sixty. Certainly it is good therapy to advise them to take longer, more frequent and less strenuous vacations. The removal of all sources of focal infection seems reasonable therapy. Small doses of iodides or thyroid extract have seemed beneficial. All such treatment must be highly individual to meet the particular circumstances of each patient.

The treatment of congestive failure in this type of heart disease differs too little from its treatment in other types of heart disease to permit discussion.

Prevention and treatment of anginal attacks is of greater interest. Little need be said regarding the use of the nitrites for relief of the attacks except that occasionally it must be used in doses larger than that ordinarily advised.

Relief was only obtained in treatment of one patient by doses of 3/100 grain repeated in ten minutes. Occasionally cessation of the attack followed external application of heat or the mustard plaster. Morphine was often required. The writer feels that he has not infrequently erred by using this drug too sparingly, particularly where attacks were rapidly recurrent or where attacks occurred during sleep. In the prevention of recurrent attacks the greatest emphasis must be laid upon rest. Certainly attacks of any great severity indicate absolute rest for several weeks just as urgently as if the patient presented an anasarca and urgent dyspnea. This rest must be mental as well as physical and the nicest judgment must be exercised in discovering irritant emotional causes. In one patient contact with a certain business associate almost invariably produced an attack. These ceased on elimination of such meetings. The patient's home is often a poor place for mental rest. Not infrequently the trivial annoyances of the household régime prevented recovery which was easily attained on removal of the patient to a hospital. Surprising benefit resulted in a few instances by teaching the patient muscular relaxation. No set rules for diet seem possible. Small meals of easily digestible food fitted to the peculiarities of the patient was the only rule. In one patient attacks were avoided by soda in large doses after each meal. The bed pan was often a means of precipitating

attacks that were avoided by the use of a commode beside the bed. The writer feels that with rare exceptions tobacco should be interdicted. Bromides and luminal were very useful and almost compulsory in a nervous, sleepless patient. These and the xanthin derivatives for their supposed action in dilating the coronary arteries seemed by far the most useful drug agents. Of the xanthin derivatives the writer found nausea too frequent with euphyllin and theophyllin itself to justify their frequent use. Theominal (theobromine with luminal) and theocalcin in some patients appeared almost specific in prophylaxis of the anginal attacks. Caffeine found more use in paroxysmal dyspnea than in angina. In view of the utility of these drugs there is no reason for forbidding tea and coffee to such patients. Digitalis was only used if there was an associated congestive failure. In such patients it did not appear to affect the anginal attacks unfavorably.

The treatment of coronary thrombosis differed from angina only in degree.

Of the other symptoms of arteriosclerotic heart disease the most interesting was Stokes-Adams syndrome. Here bed rest, barium chlorid and possibly thyroid extract seemed the most efficacious agents.

When hypertension was an associated symptom, attempts at reduction of the pressure by drugs appeared to do more harm than good.

When auricular fibrillation was present digitalis seemed the drug of choice. Previous experience with the use of quinidine in an attempt to restore normal rhythm did not seem justified by former results.

Deseret Bank Building.

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## DISCUSSION

W. R. TYNDAL, M. D. (Intermountain Clinic, Salt Lake City, Utah).—The classification of heart diseases according to etiology has been a most clarifying and satisfactory thing to me personally in the diagnosis and treatment of cardiac cases. Our medical textbooks and systems of medicine have not yet begun to follow such a classification. Every paper and article which differentiates a distinct entity out of the old mass of cardiac facts, called myocarditis,



is rendering this subject real service. The paper under discussion presents a clear, clinical picture with a definite etiologic and pathologic basis, recalling to my mind not a few clinical cases of my own not thoroughly understood at the time or adequately treated. The general practitioner who hears or reads this paper, knowing that the majority of all cardiac patients come to him for diagnosis and treatment, must be grateful for this clear elucidation of a group of cases whose seriousness heretofore has not been sufficiently comprehended.

The author implies that it is possible to differentiate the angina pectoris of coronary artery disease from angina pectoris of other conditions. I would not care to enter into an argument with him on this point; but suffice it to say, that the cause of angina pectoris is still much disputed. Sir Clifford Allbutt and his pupils think this symptom, or syndrome, is due to aortitis, the condition of the coronaries being incidental; others think it due to anoxemia of the myocardium; while S. Wasserman says it is a reflex syndrome in the region of the vegetative nervous system, with medullary spinal connections. Allbutt further states that death in angina pectoris is due, ordinarily, to vagus inhibition, that the coronary arteries and the myocardium have nothing to do with the pain of angina, but much to do with the mortality—a healthy myocardium enabling the heart to recover from the inhibition. True angina pectoris is such a well established clinical condition that its limitation to disease of the coronary arteries alone seems impracticable at present.

The treatment of arteriosclerotic heart disease has been stated briefly but succinctly, with due emphasis upon rest. However, the treatment of an attack of coronary occlusion has been almost too brief. The classical clinical picture of coronary occlusion was first elucidated to me by the author some years ago at which time he saved the life of a fellow practitioner in a typical case of coronary occlusion by constant, painstaking treatment, kept up for more than ten weeks, in which massive doses of morphin at first, combined with hospital rest and care under special nurses, were major factors. Quite recently a case of arteriosclerotic heart disease, with Stokes-Adams syndrome in an aged, feeble patient, under Doctor Viko's care recovered quite miraculously with the liberal use of barium chlorid.



WILLIAM J. KERR, M. D. (University of California Hospital, San Francisco).—Doctor Viko has rendered a real service to the medical profession in differentiating arteriosclerotic heart disease from the state usually found in association with hypertension. Recently several able clinicians have been in a quandary when trying to give a differentiation of arteriosclerotic heart disease or the so-called degenerative diseases associated with the involution period of life. It is only through a study such as this that clinical pictures can be defined. One of the most gratifying things which has happened in internal medicine in recent years has been the recognition of the condition known as "coronary occlusion." There is scarcely a recent graduate from any of the leading schools who is unable to recognize this clinical entity and to differentiate it from a lot of conditions which are not due to diseases of the heart at all. Angina pectoris as a term should be reserved for attacks of pain which come on with effort, which are relieved by rest and nitrites. For the present we may not fully understand the causes of this symptom complex. We are not absolutely certain whether it is associated with spasm of the coronaries or of the aorta or whether it is a reflex phenomenon. There are some clinicians who still apply the term "false angina" or "pseudo-angina" to a group of conditions with pain

in the region of the heart. I would prefer to discard this term altogether because of the associations in the minds of the laity.

Doctor Viko has given a clear discussion of the treatment of this group of conditions. Any physician who has treated his patients suffering from coronary occlusion with prolonged rest and has prescribed such additional measures as Doctor Viko has outlined will be certain to have many gratifying results. There is much that can be done to postpone the inevitable outcome in these cases by sparing the heart and by the proper treatment of such irregularities and the congestive failure as they occur. One can do the patient much harm by radical measures. The physician must realize that the patient will run a gradual downhill course in spite of all treatment. During recent years I have been much chagrined a few times to find that patients who had suffered for many years with coronary diseases and had responded well to treatment for the heart eventually showed symptoms associated with vascular disturbances in other organs, particularly in the brain. Some of these patients have then gone through a period of weeks, months, and even years, completely disabled because of their mental disturbances and have been a care and a burden upon their families, friends, and their resources. It makes one wonder at times whether one is justified in prolonging the lives of individuals to such an end.



G. GILL RICHARDS, M. D. (115 East South Temple, Salt Lake City, Utah).—It is certainly gratifying to see the effort made by such papers as Doctor Viko's to differentiate certain types of heart diseases. During the first few years of my medical practice, a patient had heart disease or not according to whether or not the attending physician heard a heart murmur, and digitalis was prescribed accordingly. Fortunately for the patient, the dosage was so small no damage was done. I remember distinctly a patient of my father's who thought because his ten drops of tincture of digitalis was helping him took a teaspoonful, and I was sent immediately to wash out his stomach. There are still many of us who need certain facts emphasized such as the one that heart murmurs *per se* are among the least important factors in prognosis and therapy of heart disease.

Not long ago an autopsy upon one of my patients who died in Salt Lake on his way to California revealed a mitral valve so stenosed it would barely permit an ordinary lead pencil to pass through. It is rather remarkable that such a heart could carry on in a man from the age of eighteen, when he had a severe rheumatism, and permit him to live the typical life of a cowboy in Wyoming without any discomfort until the age of sixty-three years, when he was seized suddenly with a severe pain and shortness of breath as he was running for a train two months before he died of a coronary occlusion.

It is no wonder that men out in the country without our modern equipment for diagnosis still refer cases of coronary thrombosis in for x-ray of the gall-bladder and stomach, etc., when such patients die with no other symptoms than what they misinterpret as heartburn, or even pain in the jaw. Recently we have lost two such patients. In one of these, auscultation one minute before his sudden death failed to reveal a single sign of cardiac disease.

Any effort such as Doctor Viko's to reclassify heart disease in such a way as to help us to better understand the many varieties will certainly enable us to improve our methods of recognizing and treating these patients. I especially appreciate his somewhat optimistic discussion of what can be accomplished in many of these patients while at the same time he emphasizes many of the danger signals.



## AMEBIASIS\*

COMMENTS ON VARIOUS AMEBACIDES  
REPORT OF CASE

By HAMILTON H. ANDERSON, M. D.

AND

ALFRED C. REED, M. D.

San Francisco

DISCUSSION by John F. Kessel, Ph. D., Los Angeles;  
Herbert Gunn, M. D., San Francisco.

SINCE the recognition of *E. histolytica* as the cause of endemic dysentery, attention has been focused on treatment. A variety of drugs and methods have been advocated which it is unnecessary to review here. More general satisfaction probably has been expressed with ipecac and emetin than with any other single drug type of therapy. Emetin seems to have approached nearest to the requirements of a specific cure but has fallen short in certain important particulars. These are the limited percentage of cures by the use of emetin alone, and the unpleasant symptoms and high toxicity of the drug itself for the patient. The necessity of hypodermic administration is a disadvantage, compared with a drug of similar effectiveness which could be given by mouth to ambulatory patients. A discussion has been made of the symptoms and dangers of emetin poisoning,<sup>1</sup> in which the toxic action on the heart muscle and the easy production of peripheral neuritis have been emphasized. Emetin has been a useful but dangerous and not fully satisfactory drug, whose indiscriminate and excessive use has become an abuse with serious damage to many patients.

The effectiveness of other drugs proposed for the eradication of *E. histolytica*, as judged by percentage of cures, has been relatively low in spite of glowing reports by individual workers. Uniform results of high percentage of cures have in no case been confirmed by sufficient workers in different fields. In many published observations there is little evidence that the curative value of the drug was estimated from a sufficiently long observation of the cases, checked by competent stool examination.

In regard to the criterion of cure, it is to be remembered that amebiasis means invasion of the host by *E. histolytica*, an invasion which has never been proved to occur through any other portal than the colon. The one and only diagnostic sign is the microscopic identification of *E. histolytica*. This organism does not of necessity produce dysentery or even diarrhea, and only in the presence of dysentery or diarrhea ordinarily do the trophozoite or active forms appear. In any case, diagnosis rests preferably on fixed stained preparations showing *E. histolytica*. We have arbitrarily assumed that the organism must be absent from the stools on adequate examination by a competent examiner for a period of at least three

months following termination of treatment in order to justify the conclusion of cure having been effected. Remembering the inconstancy of appearance of the cysts, it is evident that numerous examinations must be made over a three months' period at least. Possibility of reinfection must be considered in connection with the personal hygiene and direct exposure of the patient. Review of published cases and groups of cases shows at once how rarely these minimal requirements for a judgment of cure have been met.

So far, then, no satisfactory treatment of amebiasis has been developed. Even various combinations of drugs as, for example, emetin with chiniofon and acetarsone, are not invariably curative and have a definite risk of toxicity. A fully satisfactory treatment should interfere little, if at all, with the usual activity of the patient, should be of such low toxicity as to carry no practical danger of drug symptoms or damage, should be capable of administration by mouth, and should be of low cost. These conditions are not met by any accepted present-day treatment of amebiasis.

For the reasons enumerated, the search for a better drug has been carried on by many workers in recent years and there is hope that the end of the therapeutic trail may be in sight. The case reported here illustrates a common manner of response of amebiasis to various drugs which have been highly advocated for its cure and which really up to this time represent the best available agencies for fighting this infection. The value of the report lies in the length of time during which the patient has been followed, the variety of therapy employed, and the interesting implications to be derived from the frequent stool examinations as related to the treatment and the physical condition of the patient.

## REPORT OF CASE

G. S., male, aet, thirty-four, white, married, seaman and laborer.

*Complaint.*—Dysentery; five to sixteen watery stools daily, with blood, mucus, and abdominal pain, since 1920.

*Present Illness.*—Six months after trip to Argentina and West Indies patient began having fifteen to sixteen thin, watery, yellow stools daily, containing blood and mucus, and suffered from abdominal pain, not associated with jaundice, tenesmus, nausea, or vomiting. Complained of anorexia, however, and lost thirty pounds weight during the first three years of illness. He was given intramuscular injections in France during this time, with some temporary relief. The presenting symptoms recurred, however, and continued to 1923, when he received anti-amebic therapy, again only temporarily relieving him. In 1925 he was hospitalized again and was given more treatment without lasting benefit. Five years ago the appendix was removed but his symptoms continued, nevertheless. Since then the dysentery has been accompanied by tenesmus, anorexia, loss of weight, fatigability, and weakness of the legs. He was referred to our clinic in February 1930, and his course since that time is shown in the accompanying table. Six months previous to admission the patient had been given a series of intravenous injections and some oral therapy, the exact nature of which is not known.

*Family and Marital History.*—Negative.

*Past History.*—He was born in Malta, where he lived for eleven years, then to New York for eight years, and has lived in California since the age of nineteen

\* From the Pacific Institute of Tropical Medicine within the Hooper Foundation for Medical Research, University of California, San Francisco.

\* Read before the Joint meeting of the General Medicine and Pathology and Bacteriology Sections of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

\* With the technical assistance of Miss Dorothy A. Koch.



except for a four-year period at sea. The patient denies previous illnesses, but admits having had blood in his stools and "liver trouble" eighteen years ago. Venereal symptoms denied.

**Habits.**—Moderate smoker, has no food intolerances, and sleeps eight hours nightly.

**Weight.**—Average 150 pounds, present 146 pounds.

**Physical Examination.**—Temperature, pulse, and respiration are normal. Height, 5 feet 4 inches, weight 143 pounds. The patient is a poorly nourished adult, white male, apparently chronically ill. The skin and mucous membranes are pale, anterior cervical lymph nodes are palpable. Several carious teeth are present, with marked retraction of the gums. Chest is essentially negative, heart is not enlarged, pulse is regular, and blood pressure 120/70. The abdomen is full, soft, and well muscled, with a healed scar in the R. L. Q. and definite tenderness in the L. L. Q. along the descending colon and cecum which is palpable. Liver and spleen are not felt. Extremities are negative except for exaggerated patellar reflexes.

**Laboratory Findings.**—Blood Wassermann, reaction negative. Urine, negative. Blood: hemoglobin, 75 per cent (Sahli); red cells, 4,350,000; white cells, 9650 with 70 per cent neutrophils, 19 per cent lymphocytes, 6 per cent monocytes, and 5 per cent eosinophils. Stool: watery, brown, with blood and mucus, positive for motile *Entamoeba histolytica*. Phenolsulphophthalein kidney function test:

|                   | Cubic<br>Centimeters | Per Cent |
|-------------------|----------------------|----------|
| First hour .....  | 125                  | 35       |
| Second hour ..... | 100                  | 15       |
| Total.....        | 225                  | 50       |

Icterus index, 14. Electrocardiogram, rate 52, S. A. bradycardia with sinus arrhythmia, within normal limits. X-ray, gastro-enteric studies reveal no organic lesion, except spasticity of the colon. Films of gall-bladder are negative.

#### COMMENT

In Table 1 the progress of the patient is reported during the course of the present illness. It is to be noted that almost every promising drug proposed for use in amebiasis during the past twenty years has been tried without avail, with one exception. "Carbarsone," which is carbaminophenylarsonic acid,<sup>2</sup> has improved the patient subjectively and has cleared the stools of *Entamoeba histolytica* for more than eleven months following the last dose of the drug. The patient has gained weight, is free of symptoms, and has shown no evidence of toxicity from arsenic.

No practical conclusions should be drawn from the results of therapy in one case of amebiasis, but it may be said, however, that we have had comparable effects from "carbarsone" in a series of forty patients who have had a proper period of observation for three months after treatment. We expect to report such a group of patients soon, but present this case in detail to indicate the variety of response in an individual patient to the various amebicides which are recommended.

#### SUMMARY

1. The therapy of amebiasis has heretofore been unsatisfactory.
2. The most effective drugs in general use, especially emetin, are not certainly curative and easily cause serious toxic symptoms.
3. A case is reported in which a great variety of drugs had been employed repeatedly without success, and in which a "cure" apparently fol-

lowed the intensive use of a hitherto unused synthetic arsenical, "carbarsone" (carbaminophenylarsonic acid).\*

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2. Supplied through the courtesy of the Lilly Research Laboratories, Indianapolis. For previous reports on this drug, see: Leake, C. D., Koch, D. A., and Anderson, H. H., Proc. Soc. Exper. Biol. and Med., 27:217, 1930; Chen, M. Y., Anderson, H. H., and Leake, C. D., *ibid.*, 28:145, 1930.

#### DISCUSSION

JOHN F. KESSEL, PH. D. (University of Southern California, Los Angeles).—This special study of the treatment of a single case of amebiasis may illustrate one of two types of cases which are commonly encountered. First, the case which has received inadequate treatment for amebiasis and has passed from the hands of one inexperienced physician to another, or second, the case which has actually proved resistant to adequate treatment with an accepted amebicide. It would appear from the history that the latter picture obtains in this instance. In looking over the list of early treatments employed in this case it is of interest to note that emetin in some form or other was the drug most commonly used and it would appear that dosage generally recognized to be sufficient was employed at least on two different occasions. The fact that the case did not respond to emetin illustrates the experience common to many, that for chronic intestinal amebiasis emetin in doses which can be tolerated by most patients is often ineffective. This fact, however, does not rule out the use of emetin in amebic dysentery and in amebic hepatitis, where it produces dramatic results. Arsenicals other than stovarsol were used in the early treatment and chiniofon or yatren was employed, but when given orally insufficient amounts to produce a cure were administered. Personal experience in following up one hundred cases treated with yatren in the Peking Union Medical College in which 90 per cent responded to the treatment led to the conclusion that this drug is a very satisfactory treatment for chronic amebiasis. It was not, however, as effective against other of the intestinal protozoa as against *Entamoeba histolytica*. As a consequence cases of mixed protozoal infection and cases resistant to yatren were treated with a combination of yatren and stovarsol. Three grams of yatren were given by mouth on the odd days and .37 grams of stovarsol were given on the even days for a period of two weeks. This treatment proved especially effective and recently in the Los Angeles General Hospital in a series of twenty-five cases so treated and followed up by Dr. C. L. Davison and myself a remarkably high incidence, both of protozoological and of clinical cures, has resulted.

The attempt here reported on the part of Doctors Anderson and Reed to employ an effective treatment for amebiasis which will produce the minimum toxicity to the patient and the maximum amebicidal results is to be commended for this is a marked need in the field of therapy in protozoiasis. It is to be hoped that their report of additional cases will show the same effective results reported in this instance.

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HERBERT GUNN, M. D. (2000 Van Ness Avenue, San Francisco).—The effort of the authors to find a drug which will be amebicidal and at the same time non-

\* Since this case was presented before the California Medical Association on April 30, 1931, the patient has been examined at frequent intervals. Clinically he is cured, and ten stool examinations from May 1 to November 12, 1931, have been negative for *Entamoeba histolytica*. During the past eleven months, then, following the last dose of carbarsone, the patient has been clinically well for the first time since the onset of his infection in 1920.



TABLE 1.—*Response of Patient to Various Amebicidal Agents*

| Date               | Stool Examinations*        | Treatment                                                                                                                                                                                                                                                                                                           | General Condition and Response to Therapy                                                                                                                                                              |
|--------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1920-1923          |                            | Intramuscular injections in France (drug not known)                                                                                                                                                                                                                                                                 | Fifteen to sixteen watery stools, with blood, mucus, and abdominal pain. Temporary relief.                                                                                                             |
| 8-9-23             | +E. histolytica (motile)   | Emetin HCl (intramuscular) 0.65 gram in eighteen days<br>"Aleresta ipecac" pills (oral) six daily for eighteen days<br>Quinin sulphate 1:1000 solution per rectum, twice daily for eighteen days<br>Bismuth subnitrate (oral) twelve grams daily for eighteen days<br>Neoarsphenamin 0.6 and 0.9 gram (intravenous) | In hospital, 8-9-23 to 9-22-23. Weight on entry 136.5 pounds, on discharge 144.5 pounds. Frequency of stools reduced from five to six daily to one formed movement a day.<br><br>Relief for two weeks. |
| 10-24-23           | +E. histolytica (motile)   | Emetin bismuth iodid (oral) 0.2 gram daily for fourteen days                                                                                                                                                                                                                                                        | In hospital from 10-24-23 to 10-26-23. Six to seven movements daily with blood and mucus.                                                                                                              |
| 2-26-25            | +E. histolytica (motile)   | Emetin HCl (intramuscular) 0.65 gram in ten days<br><br>Neoarsphenamin 0.6 and 0.9 gram (intravenous)<br>Emetin bismuth iodid (oral) 0.2 gram daily for ten days                                                                                                                                                    | Dysentery persists.<br>In hospital from 2-26-25 to 3-17-25. Weight on entry 144.5 pounds, on discharge 149.0 pounds.<br><br>Temporary relief.                                                          |
| 7-30-29            |                            |                                                                                                                                                                                                                                                                                                                     | Eight to ten watery stools, with blood, mucus, and abdominal pain.                                                                                                                                     |
| 9-15-29            |                            | Intravenous and oral therapy, nature of drugs not known                                                                                                                                                                                                                                                             | Symptoms persist.                                                                                                                                                                                      |
| 2-17-30            | +E. histolytica (motile)   | Treated locally for internal hemorrhoids, referred to us by Dr. Dudley Smith (surgical clinic) following proctoscopy, for investigation                                                                                                                                                                             | ("Ulcerations of rectum which look like amebiasis.")                                                                                                                                                   |
| 2-18-30 and 19-30  | +E. histolytica (motile)   |                                                                                                                                                                                                                                                                                                                     | Weight 143 pounds.                                                                                                                                                                                     |
| 2-20-30            | +E. histolytica (motile)   | "Kurchi alkaloids" (oral) five grams in ten days.                                                                                                                                                                                                                                                                   | No symptomatic relief.                                                                                                                                                                                 |
| 2-25-30            | Negative                   |                                                                                                                                                                                                                                                                                                                     | Positive stool on 3-3-30.                                                                                                                                                                              |
| 3-4-30             | +E. histolytica (motile)   | "Auremetin (oral) two grams in fifteen days                                                                                                                                                                                                                                                                         | Blood pressure 120/70, pulse 70. Temporary relief.                                                                                                                                                     |
| 3-11-30            | Negative                   |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                        |
| 3-15-30            | +E. histolytica (motile)   |                                                                                                                                                                                                                                                                                                                     | Two to three formed movements a day without pain, blood or mucus.                                                                                                                                      |
| 3-18-30            | +Giardia intestinalis      | Emetin HCl (subcutaneous) 0.65 grams in twelve days                                                                                                                                                                                                                                                                 | Presenting symptoms recurred.                                                                                                                                                                          |
| 3-29-30            | Negative                   |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                        |
| 4-5-30             | +E. histolytica (motile)   |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                        |
| 4-8-30             | Negative                   |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                        |
| 4-10-30 to 4-28-30 | Negative<br>Negative       | Acetarsone (oral) 2.75 grams in eleven days<br>Chiniofon (oral) 7.5 grams in fifteen days                                                                                                                                                                                                                           | Symptomatic relief. Two formed movements daily, no pain, blood, or mucus. Condition good.                                                                                                              |
| 4-12-30            | +E. histolytica (culture)  |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                        |
| 5-15-30            | Negative                   |                                                                                                                                                                                                                                                                                                                     | Blood pressure 112/72, pulse 70. Presenting symptoms recurred.                                                                                                                                         |
| 6-2-30             | (Charcot-Leyden crystals)  | Chiniofon (oral) 7.5 grams in ten days<br>Chiniofon (rectal) 50.0 grams in ten days                                                                                                                                                                                                                                 | In hospital from 6-2-30 to 6-14-30. Much improved. One to two formed movements daily, no pain, blood, or mucus.                                                                                        |
| 6-16 to 24-30      | Negative                   | Emetin HCl (subcutaneous) 0.55 gram in fifteen days                                                                                                                                                                                                                                                                 | Symptoms recurred, i. e., four watery movements daily with blood and mucus, no pain. Blood pressure 138/64, pulse 76.                                                                                  |
| 7-1-30             | +Strongyloides stercoralis |                                                                                                                                                                                                                                                                                                                     | In hospital from 7-1-30 to 7-8-30.                                                                                                                                                                     |
| 7-2 to 10-30       | +E. histolytica (motile)   | Acetarsone (oral) 5.0 grams in ten days                                                                                                                                                                                                                                                                             | Excessive perspiration, dermatitis, and pains in joints.                                                                                                                                               |

\* Fresh stool and fixed wet iron hemotoxylin preparations routinely examined.

TABLE 1.—*Response of Patient to Various Amebacidal Agents (Continued)*

| Date               | Stool Examinations*                        | Treatment                                                                               | General Condition and Response to Therapy                                                                                                                                                         |
|--------------------|--------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8-5-30             | (Culture negative for colon-typhoid group) |                                                                                         | Blood pressure 110/68. Weight 152.5 pounds. Three formed movements daily. Symptomatic improvement.                                                                                                |
| 8-28-30            | +E. histolytica (motile)                   |                                                                                         |                                                                                                                                                                                                   |
| 8-30-30            | Negative                                   |                                                                                         | Symptoms, four to five watery stools with pain in rectum.                                                                                                                                         |
| 8-31-30 to 9-19-30 | Negative                                   | "Carbarsone" (oral) 1.5 gram in five days<br>"Carbarsone" (oral) 1.5 gram in seven days | Two to three watery stools daily, no blood, no mucus.                                                                                                                                             |
| 10-16-30           |                                            |                                                                                         | Six watery stools daily, no pain, no blood, no mucus.                                                                                                                                             |
| 10-24-30           | +E. histolytica (culture)                  |                                                                                         | Three watery movements daily with blood and mucus, but subjectively improved. Blood pressure 112/70. Weight 152 pounds.                                                                           |
| 10-28-30           | +E. histolytica (culture)                  | "Carbarsone" (oral) 3.0 grams in ten days                                               | Five watery stools daily with pain, otherwise no change in condition.                                                                                                                             |
| 11-1 to 13-30      | Negative                                   |                                                                                         | "Feels fine," no evidence of arsenic toxicity.                                                                                                                                                    |
| 11-22-30           | +E. histolytica (cyst and motile)          |                                                                                         |                                                                                                                                                                                                   |
| 11-25-30           | Negative                                   | "Carbarsone"† (oral) 6.0 grams in twelve days                                           | Condition improved.                                                                                                                                                                               |
| 12-7-30 to 3-14-31 | Negative (Weekly examinations)             |                                                                                         | Condition improved. Has three to four formed movements daily, no pain, no blood, no mucus. Blood pressure 132/84, pulse 64. Symptom-free. Gained sixteen pounds in weight. Subjectively improved. |
| 3-20-31            | +Strongyloides stercoralis                 |                                                                                         | Weight 159 pounds.                                                                                                                                                                                |
| 3-28-31            | Negative                                   |                                                                                         |                                                                                                                                                                                                   |
| 4-18-31            | Negative                                   |                                                                                         | Continues well.                                                                                                                                                                                   |
| 4-28 to 11-12-31   | Negative                                   |                                                                                         |                                                                                                                                                                                                   |

\* Fresh stool and fixed wet iron hemotoxylin preparations routinely examined.  
† Total "Carbarsone" (carbaminophenylarsonic acid) administered from 8-31-30 to 12-7-30 is 12.0 grams, or about 185 milligrams per kilo body weight without exhibition of toxic symptoms.

toxic is certainly commendable. Their remarks regarding the toxicity of emetin are certainly correct. However, it must be remembered that severe toxic effects of this drug are evidenced only when it is given in overdoses or injudiciously. The maximum dose should not exceed .65 grams given over a period of from two to three weeks and it should never under any circumstances be given to ambulant cases. Emetin is one of the most valuable drugs we have in the treatment of amebiasis, but it has distinct limitations. It is of the greatest value in controlling ulcerative lesions produced by the amebae, but it has practically no amebacidal properties if used alone. Amebae recur almost invariably after a treatment with this drug alone although the symptoms may remain absent for a long period of time. Combined with some of the arsenicals, which are amebacidal, increased effectiveness is obtained.

Their statement regarding the ineffectiveness of other drugs, I believe is quite true as regards a great many of the treatments advocated, but this fact in no way justifies the conclusion that no drugs or treatments have been advocated that are efficacious. I would say rather that the treatment of amebiasis if properly carried out has reached a stage of specificity closely approaching that of malaria.

In 1918 I published an article in the CAL. STATE JOUR. OF MED., Vol. 16, p. 240, on the treatment of twenty cases of amebiasis with a combination of emetin hydrochlorid and neoarsphenamin. The cases in this series were checked very carefully over a period rang-

ing from several months to several years. I made the statement at that time that this combination was distinctly amebacidal and that about 80 per cent of cures would result from its use. Since that time I have treated several hundred cases with this combination and I will change my statement of results to 90 per cent of cures instead of 80 per cent.

The treatment as originally published has been modified somewhat in that the dosage of emetin hydrochlorid has been considerably reduced and the neoarsphenamin increased. Other preparations of arsenic are undoubtedly amebacidal to a high degree, for instance acetarsone. I have discontinued the use of this drug on account of the frequency with which toxic symptoms occurred.

A comparatively new drug which is also amebacidal is chiniofon, sold under the trade names of yatren and anayodin. I have used the preparation called anayodin quite extensively in the last few years and have not observed any toxic effects from it. When combined with neoarsphenamin, which may be administered rectally, the results in ambulatory cases have shown more than 90 per cent of cures. Anayodin may also be used in the treatment of dysenteric patients after the symptoms have been controlled with emetin, thus greatly reducing the amount of emetin necessary. The anayodin treatment to be effective must be given in sufficient dosage over a long enough period of time. In the treatment of ambulatory cases about two hundred pills of four grains each, representing a total of about fifty-three



grams of anayodin, is my average dose, given during a period of from four to six weeks. In addition, two or three doses of nearsphenamin are given, usually by rectum, during the course of treatment. The appearance of diarrhea may necessitate the reduction of the dose of anayodin or its omission temporarily. It may be observed that this dosage of anayodin is about seven times larger than that used by mouth in the authors' case.

Rest, one of our best adjuncts in the treatment of intestinal disturbances, is almost completely lost sight of in most discussions of the treatment of amebiasis. Rest during treatment often is the deciding factor which makes for success. A patient should not be considered ambulatory just because he is able to walk. There is no question about the desirability of treating carriers or patients with mild symptoms as ambulatory, but if a patient has a disease which has caused him more or less discomfort or invalidism for many years, even though these symptoms are mild and occur periodically, he should be put to bed to be given his treatment.

With reference to the value of the case treated by the authors for the purpose of evaluating various remedies, I would seriously question the wisdom of estimating the effect of one drug when closely following another or, as in this case, many others. One remedy may destroy nearly all the amebae and leave those remaining in an attenuated condition so that the result of a succeeding treatment might be misinterpreted. I had such a case recently where at post-mortem the amebae were found to exist only in an area about an inch and a half in diameter. Previously distant amebic ulcerations had been demonstrated through the sigmoidoscope.

The past history of the case described by the authors is not an unusual one. It shows intractability to treatment, but by no means justifies the conclusion that none of the drugs used were efficient. An understanding of the pathology of amebiasis shows clearly that we cannot expect to cure some cases unless several courses of treatment are used. In order to compare the value of various remedies the only satisfactory method is to treat a series of cases with each remedy in question, carefully checking the results. No doubt Doctors Anderson and Reed will do this, and I for one hope the drug they are using will prove to be of value.



DOCTOR ANDERSON AND DOCTOR REED (Closing).—Doctor Kessel speaks from an unusually rich experience and many years of accurate observation. We feel, however, that his differentiation between amebic dysentery and "chronic amebiasis" is based on a wrong conception of the natural history of this disease. From the standpoint of the pathology, epidemiology and therapeutics of amebiasis, we feel strongly that James' dictum is correct, that the patient with amebic infection is a constant danger to himself and to others, and should always be treated. We feel that no symptom complex, dysenteric or otherwise, modifies the effectiveness of treatment and, therefore, should not modify the character of treatment. Doctor Kessel rightly refers to the dangers of emetin and its frequent ineffectiveness. Clinically, however, emetin is by no means specific for amebic ulceration. The usefulness of yatren will be discussed below. We have not been concerned about the action of any amebicidal drugs on other protozoa, as we consider their pathogenicity at least doubtful and in any case relatively negligible in comparison with *E. histolytica*. Stovarsol is decidedly unsatisfactory because of its high toxicity. Agreeing with James' opinion, we can consider only protozoologic cure as the goal to be achieved.

Doctor Gunn's discussion illustrates nicely the very points which have led us to seek new drug agents for the cure of amebiasis. His reference to the dangers of emetin when used "in overdoses or injudiciously" is strong evidence for the need of a new and different drug. Our paper did not make the claim, nor conclude, that "no drugs or treatments have been advo-

cated that are efficacious." Reference to the paper itself will show clearly the points on which all treatments advocated to date are *unsatisfactory*. The method of treatment advocated by Doctor Gunn illustrates this very point. In the first place, it includes an emetin course, with the attached risks that Doctor Gunn has emphasized. It is to be reiterated that even judicious use of emetin within average safe limits does *not* remove but only minimizes toxic effects. Secondly, it requires bed rest. This is expensive for the patient and often economically impossible. It also, like the emetin injections and the general prolonged length of treatment, adds seriously to the patient's cost in time and in money. Any type of treatment that adds seriously to the patient's cost in time, in drug cost and in medical fees, is decidedly unsatisfactory and should lead to search for better methods. Thirdly, the drug cost is high. Chiniofon, which is the official name under which some half-dozen proprietaries are marketed, is the name which should be used instead of yatren. It is essentially the same as anayodin which has less iodine content. The amount Doctor Gunn prescribes costs the patient, at retail, approximately \$12. Ten grains of emetin in hypo tablets average \$3 to the patient. Three doses of nearsphenamin (0.9 gram) cost approximately \$6. Thus the drug cost to the patient approximates \$21. In addition the patient must pay for physician's visits and must lose much time, with only an 80 to 90 per cent chance of cure. Evidently a more effective treatment, costing the patient less than \$2 complete for drugs, would be more satisfactory.

Our own experience with the older methods of treatment parallels that of Doctor Gunn in percentage of protozoologic cures. In view of the high toxicity and expense of these methods, we can hardly agree that they have reached a degree of specificity approaching that in malaria. But even if such were the case they would still be unsatisfactory for the exact reasons enumerated and because the treatment of malaria itself has by no means reached a satisfactory state of specificity. Doctor Gunn's statement that a patient with a disease which has caused him more or less discomfort or invalidism for many years should be put to bed to be given his treatment can scarcely be accepted as a general rule in medical practice.

In the present paper it has been our aim to illustrate from a practical case the disadvantages of the older treatment of amebiasis. The discussions above confirm our belief that improved methods are needed. The advantage of an oral ambulatory method of low cost, low toxicity, and high efficiency would seem self-evident.

## CHRONIC THYROIDITIS\*

By WHITFIELD CRANE, M. D.  
Oakland

DISCUSSION by D. Schuyler Pulford, M. D., Woodland;  
Verne Carlton Hunt, M. D., Los Angeles; Clarence G.  
Toland, M. D., Los Angeles.

THE problems arising in the diagnosis and treatment of thyroid dysfunction are of absorbing interest to the internist, surgeon, and pathologist. There is a great deal that we do not know, but with the fairly universal adoption of practical classifications of goiter the diagnosis and treatment of the well known types have been more or less standardized. There is, however, one peculiar disease entity of the thyroid that until the last few years has received comparatively little attention in this country. This is the

\* Read before the General Surgery Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.



condition known as chronic nonspecific thyroiditis or Riedel's disease.

This entity was first described by Riedel before the German Surgical Congress of 1896 as "a chronic inflammatory change in the thyroid gland with the final development of an iron-hard tumor simulating malignancy." Only isolated case reports following that appeared in the literature, thirty-five in all up to 1926. In that year Smith and Clute of Boston reported five cases from the Lahey Clinic, Searls and Bartlett seventeen cases from the University of California Hospital. Ewing cited four cases and accurately described the pathologic changes. In reviewing the thyroidectomies at the Mayo Clinic over a five-year period, I collected twenty-eight cases diagnosed by the pathologist at the time of operation as chronic primary thyroiditis.

#### SYMPTOMS AND SIGNS

A typical case is characterized by the development of a rapidly growing fairly uniform enlargement of the gland with or without mild hyperthyroid symptoms; an infiltrating type of growth, extremely firm or hard on palpation, causing tracheal pressure with increasingly marked symptoms of choking and dyspnea. A knowledge of the pathologic changes involved is essential to the understanding of this disease.

#### HISTOLOGY OF THE NORMAL THYROID

Let us first consider the histology of the normal thyroid. It is composed of acini lined by cuboidal epithelium, the acini being filled with colloid. The supporting framework is made up of connective tissue, in which run the blood and lymph vessels. In order to determine the amount of inflammatory change in normal thyroids I made a microscopic study of fifty glands secured at autopsy on patients between the ages of fifteen and sixty. It was found that one-third of these specimens were devoid of any inflammatory change; the others, all in the later decades of life, showing only mild evidence of interacinar stroma increase with only occasional slight round cell infiltration. It can be safely said, then, that inflammatory change is not found in normal thyroids to any degree.

#### PATHOLOGY

Two entirely dissimilar microscopic pictures have been described in chronic thyroiditis: one, the deposition of lymphoid tissue in the gland as shown by Hashimoto in 1912; and two, the replacement of the acini by fibrous connective tissue as described by Riedel. Ewing has clarified this situation by his reasoning that these markedly different pictures merely represent different stages in the same disease.

There is first a marked lymphocytic infiltration of the stroma with the final development of numerous lymphoid follicles; typical germ centers composed of lymphoblasts, reticular cells and mitotic figures. This progresses with a gradual compression and obliteration of the functioning gland tissue until we see practically the whole gland a solid mass of lymphoid tissue. This is

the "struma lymphomatosa" of Hashimoto. Gradually connective tissue replaces the cellular infiltration and we finally find a solid mass of fibrous tissue surrounding small islands of the few remaining acini. This, in brief, carries the pathologic changes through to the final development of the iron-hard goiter or ligneous thyroiditis as described in the literature.

Grossly the specimens are characterized by a fairly uniform enlargement of the gland distinguished by an abnormal firmness of structure, in some cases of such marked degree that the tissue cuts with difficulty. The cut surfaces show an even beefsteak-like appearance similar to that seen in exophthalmic goiter, except that they are paler in color, dry, with no secretion present and dense fibrous bands very prominent. Those composed of lymphoid tissue are very friable, pale in color and dry on the cut surface. A particular feature of the growth is the constant tendency for the inflammatory process to spread and infiltrate the superficial and prevertebral fascias and muscles of the neck.

The point has been raised by several observers that because evidence of inflammatory change is found in hyperplastic goiters, that chronic thyroiditis is not a distinct entity, but simply a stage of hyperplasia. With this point in mind I examined microscopically 110 exophthalmic goiters, 50 toxic adenomas, and 40 nontoxic adenomas. While evidence of inflammatory change is present to some degree in exophthalmic goiter and toxic adenoma, this occurs in less than 50 per cent and is never marked. It seems to me that this is sufficient proof of the fact that primary chronic thyroiditis is a distinct clinical entity. Searls has also brought out this point, and I certainly agree with him.

#### COMMENTS ON PATIENTS UNDER OBSERVATION

Of our twenty-eight cases twenty-four, or 85.7 per cent, were females and four, or 14.3 per cent, were males. The oldest patient was sixty-one years, the youngest twenty-four years, the average being forty-one years.

Twenty-one, or 75 per cent, had no history of previous thyroid disturbance prior to the onset of the present symptoms. Seven, or 25 per cent, had had a previous symptomless goiter. The duration of these goiters before the onset of the secondary enlargement varied from five to fifteen years, with an average duration of nine years. In all of the twenty-eight cases the symptoms of thyroiditis were present for comparatively a short time. The duration of symptoms from the time enlargement of the gland had been noticed until the patients presented themselves for examination ranged from three months to one year, the average being five months.

The clinical manifestations in these patients were fairly uniform. There was a history of progressive, rather uniform enlargement of the thyroid, accompanied in a few instances by mild evidence of toxicity, nervousness, palpitation, etc., although these symptoms were never present to a marked degree. Exophthalmos, thrill and bruit



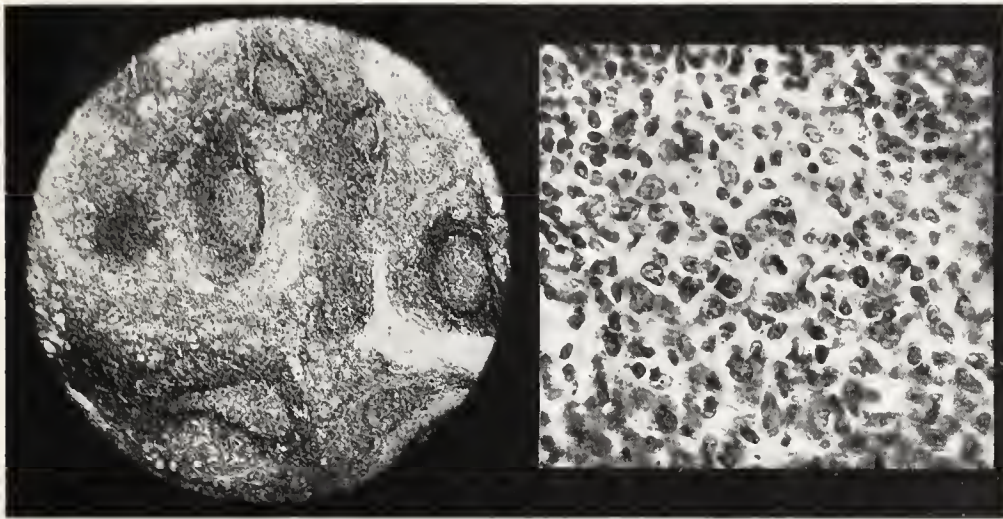


Fig. 1.—A section of typical lymphoid thyroiditis, showing the numerous germ centers. X-50.

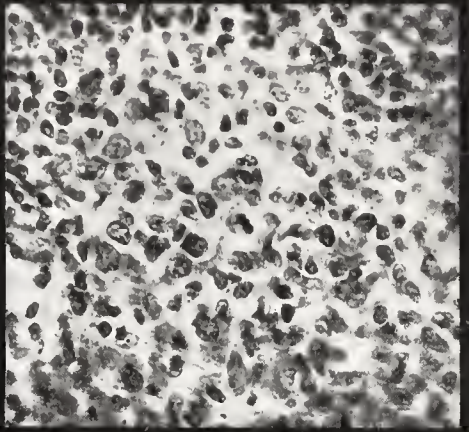


Fig. 2.—High-power section through a germ center, showing lymphocytes, lymphoblasts, and mitotic figures. X-400.

were never present. Searls has brought out the point that absorption of inflammatory products, rather than thyrotoxicosis, may account for these occasional mild toxic symptoms. Many suffered from tenderness over the thyroid, with pains radiating to the ears and angles of the jaws. Hoarseness and progressive dyspnea, however, were the predominating features in the advanced patients, due to the gradual compression of the trachea by the contracting scar tissue of the isthmus. Hoarseness is caused by recurrent laryngeal involvement in the spreading inflammatory process. Dysphagia was not present in any of our patients. If it is present it is very suggestive of malignancy.

These patients are for the most part in fairly good general health, and although some give a history of a mild degree of apparent hyperthyroidism they do not show the marked signs and symptoms attendant on hyperplasia. The basal metabolic rate rarely is distinctive. This was taken in all our cases and varied from minus 14 to plus 20, the average being plus 7.

The tumor itself usually presents particular characteristics, which may give a clue to the condition. In the majority of instances the gland is entirely involved. The tumor is not large, but seems to be fixed and spreads and infiltrates the muscles and superficial fascias of the neck. The uniform firmness or hardness of the growth is undoubtedly the most noteworthy finding. In advanced cases it gives a stony or woody feel on palpation which accounts for the name "woody thyroiditis." The surface is smooth, although occasionally indurated areas may give the impression of adenomata. The overlying skin is always intact and non-adherent, and the re-

gional lymph nodes are not involved.

The clinical diagnosis of primary thyroiditis is difficult. The typical well-advanced case is, of course, usually mistaken for malignancy. The patients who present themselves comparatively early in the course of the disease, with or without beginning symptoms of hyperthyroidism, are apt to be given a clinical diagnosis of hyperplastic, toxic or nontoxic adenomatous goiter, especially if there is some alteration from normal of the basal metabolic rate.

All the twenty-eight patients came to operation. Nineteen had a double resection of the gland done. The remaining nine patients in whom either the clinical or surgical diagnosis was chronic thyroiditis had either single resection or biopsy with cuneiform resection of the isthmus.

One patient died in the hospital of pneumonia; of the remaining twenty-seven we were able at the end of six months to trace sixteen, most of whom returned for a basal metabolic rate check-up. Of these sixteen, eight, or 50 per cent, had developed well-marked myxedema, which necessitated the continuous administration of thyroid extract or thyroxin. The average basal metabolic rate was minus 20. Six of these eight patients had had a double resection done, two single resections. These two latter patients showed, however, on pathologic examination, practically an entire replacement of the gland with lymphoid tissue. All the sixteen patients, however, had obtained relief from pressure symptoms on the trachea and most of them were free of the mild toxic symptoms they had on admission.

In view of the fact that the clinical diagnosis of this condition is extremely difficult, the responsibility rests largely with the surgeon. It

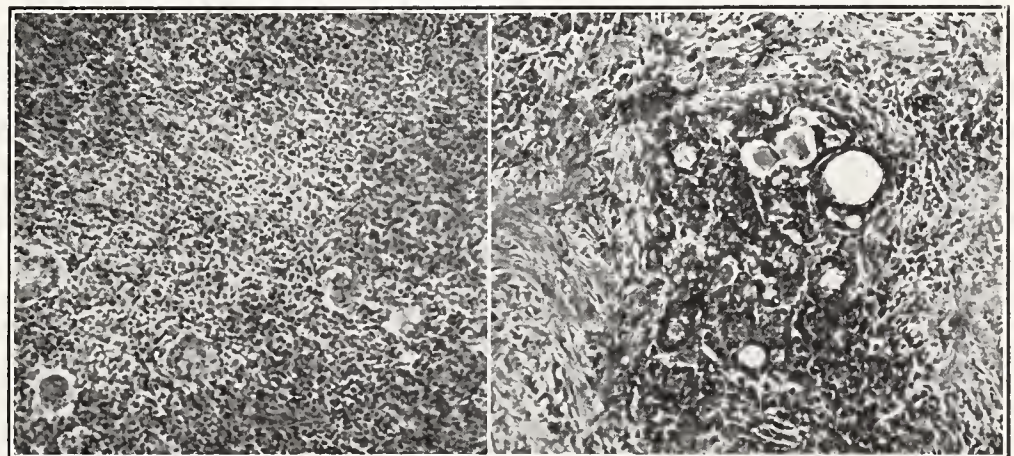


Fig. 3.—A section showing diffuse lymphoid infiltration. A few acini are seen, but practically the whole gland is replaced by lymphoid tissue. X-120.

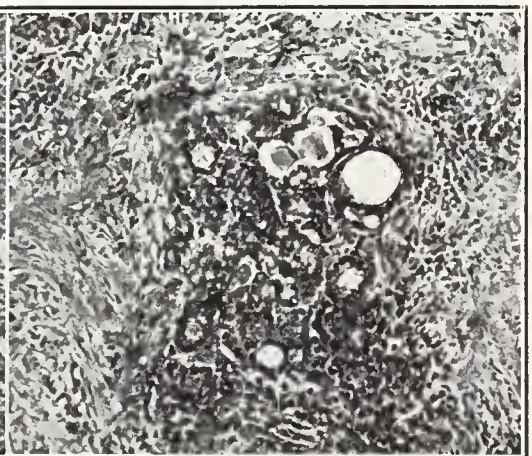


Fig. 4.—A typical section of fibrous thyroiditis, showing compression of acini by bands of dense fibrous tissue, with inflammatory cell infiltration. The entire gland has the same structure. X-120.



would seem logical that the procedure of choice when thyroiditis is suspected, either clinically or surgically, is to do a biopsy and obtain an immediate diagnosis by the fresh frozen section method. If the diagnosis is confirmed by the pathologist as primary thyroiditis a resection of the isthmus or single resection to free the trachea from compression should be done.

#### ETIOLOGY

A few words regarding the etiology. Nothing definite is known. Tuberculosis, syphilis, and actinomycosis have been ruled out. Searls reports *Streptococcus viridans* recovered from one specimen and from the patient's throat culture. From the fact that many of these patients give histories of mouth and throat infection it seems as if this would be the most logical source of trouble. However, there is nothing definite.

#### SUMMARY

To sum up, then, we may say:

1. Chronic primary thyroiditis is a definite entity characterized by an inflammatory cellular infiltration of the gland with resultant massive fibrous tissue replacement of the acini.
2. The clinical diagnosis is difficult, most cases being mistaken for malignancy.
3. The procedure of choice is biopsy and division of the isthmus, or single resection, because of the marked tendency to myxedema following classical double resection of the gland.

Wakefield Building.

#### DISCUSSION

D. SCHUYLER PULFORD, M. D. (Woodland).—Doctor Crane states briefly but completely the known facts about chronic thyroiditis. He reports a large group of cases well studied and followed up. More important, however, is his contrast study of (1) the chronic thyroiditis gland; (2) the hyperplastic goiter type of gland; and (3) the normal thyroid, as removed at autopsy.

Of the 588 articles published in 1930 on the thyroid and its diseases, nineteen, or 3.2 per cent, were on thyroiditis. Only one, however, was on Reidel's thyroiditis, the other types being: acute nonsuppurative, seven; acute purulent, five; lues, two; tuberculosis, three; and the pathogenesis of thyroiditis, one. This gives a fair index of the frequency of the different types. It seems evident, though, that many cases of Reidel's thyroiditis go unreported.

Our cases at Woodland have been two acute suppurative, three acute non-suppurative, one actinomycosis, and three chronic thyroiditis with hypothyroidism associated with or following other chronic infections.

From the standpoint of the tissue pathologist little difficulty is encountered in correctly diagnosing primary chronic thyroiditis. This should be done at the operating table with fresh tissue methods, as the surgeon may mistake a malignancy for a thyroiditis or vice versa and the operative procedure is different in each case. Amyloid disease of the thyroid gland is encountered occasionally, but should be recognized by its "bacon-like" gross appearance and the fact that it does not bleed during operation. It is usually part of a general amyloidosis but may occur alone. The study of excised thyroid glands shows that the type of inflammatory reaction seen in hyperfunctioning thyroid glands is mostly a lymphoid tissue increase and never a fibrous tissue replacement as described by Reidel. Seeing no transition state between hyperthyroid goiters and Reidel's thyroiditis, even

after hyperthyroidism has come and gone, substantiates the claim that chronic thyroiditis is a primary disease entity.

From the standpoint of the clinician emphasis should be placed on the necessity of early exploratory operation to rule out malignancy and that hypothyroidism or myxedema is to be expected in all cases. In the few cases I have seen, pain in the neck was a prominent complaint. A pulse rate out of proportion to the illness of the patient and a nervousness that might have been mistaken for hyperthyroidism, had not the B. M. R. guided one, were also striking features. Acute thyroiditis, either with or without suppuration, is a disease distinct from Reidel's thyroiditis. Other clinical points worth mentioning are that too much gland is often removed; tuberculous thyroiditis usually has another focus and these patients usually have an associated hyperthyroidism. Lues also is never primary in the thyroid glands.

I would like to add in closing that in reading Doctor Crane's brief remarks on thyroiditis one gets no idea of the time and labor put in by him in studying the literally hundreds of sections of thyroid glands of normal, hyperplastic and thyroiditis cases. He is one of the few physicians who is well trained in surgical pathology. This type of surgeon should contribute more often to the medical literature.



VERNE CARLTON HUNT, M. D. (555 Roosevelt Building, Los Angeles).—I should like to emphasize the statement Doctor Crane has made that the clinical diagnosis of thyroiditis is most difficult and when it does exist may only be suspected in the differential diagnosis when the firmness of the gland may likewise suggest the probability of malignancy. The true nature of the condition can only be determined by exploration and microscopic section.

Accurate tissue diagnosis is most important in the event that thyroidectomy may be considered advisable, for certainly in the presence of thyroiditis if partial thyroidectomy is done a much larger amount of gland tissue should be left *in situ* than for any other condition of the thyroid for which thyroidectomy is done.



CLARENCE G. TOLAND, M. D. (902 Wilshire Medical Building, Los Angeles).—Of the rarer types of enlargement of the thyroid gland, ligneous thyroiditis perhaps most strongly intrigues our interest.

There is so little we know about the disease; its etiology is obscure, its clinical recognition is uncertain, and the treatment is prone to yield unsatisfactory results.

Cases of this type occur too infrequently to permit thorough investigations, with the result that practically nothing has been contributed to their etiology.

On clinical examination the extreme hardness of the enlargement, with its infiltration into the surrounding structures, readily leads one to suspect a malignancy rather than a thyroiditis. Syphilis of the thyroid also very closely simulates the condition, and we must not fail to investigate the blood serum in these cases.

It should be remembered that occasionally a spontaneous regression of the tumor will occur, with disappearance of the symptoms.

Doctor Crane's suggestion that an immediate frozen section and microscopic examination be made before proceeding with the operation is a valuable one. The gross characteristics of the gland tend to urge the operator toward a too radical thyroid resection, while an immediate microscopic diagnosis will lead to a more conservative procedure. Thus valuable thyroid tissue will be saved and the patient spared the distress and inconvenience of a later hypothyroidism.

Doctor Crane's study of a relatively large group of cases has materially contributed to a more thorough understanding of chronic thyroiditis, and in addition he has stimulated the interest and thought of his colleagues so that further research may be engendered.



# THE LURE OF MEDICAL HISTORY

## ESSAYS ON THE HISTORY OF EMBRYOLOGY\*

OLD IDEAS REGARDING SEX, FERTILIZATION,  
AND PROCREATION

By A. W. MEYER, M. D.  
*Stanford University*

WE know from the oldest of myths and sagas that even our remotest ancestors were curious about their origin and development. They could not help but be, and when man first began to speculate upon the origin of the universe he could not have failed to speculate also regarding his own origin. Hence, in a certain sense, the history of embryology is contemporaneous with human thought, and, although I do not mean to imply that the habit of systematic observation goes back to the earliest days of man, even primitive man must have begun to think regarding what he saw around himself and what he experienced within himself as soon as he began to think at all.

The history of embryology should be contemporary with that of gross human anatomy, for what could arouse more curiosity than prenatal life or the newborn. There must of necessity have been abundant opportunity for observations upon such things as bird and mammalian embryos in connection with the search for food and the use of eggs for food. In the days when human relations were primitive and life was rude, disembowelings of man and animals cannot have been rare, and fetuses must have been a rather common sight. Moreover, there is reason to believe that the examination of the unborn was then not hedged about by restrictions as was that of the dissection of the dead of any age in postnatal life. The bodies of fetuses born prematurely, unless very near term, usually were not regarded as sacred, as were those that died after a mature birth, an attitude which survives and hampers us even today.

Since the very young embryos of all mammals are so very similar, and since pregnant human beings, as well as animals, were often "put to the sword," opportunity for observations on prenatal development cannot have been lacking even in primitive times. If we recall that man for ages past used the eggs of fowl and the flesh of animals for food, and used human sacrifices, the correctness of this inference will be abundantly evident.

### EARLY SPECULATIONS

It is curious that the history of embryology has received so little attention and that no full treatise on it exists in any language. This may be partly due to the fact that the entire history of science was neglected until a very recent date, but the chief explanation probably lies in the relatively recent development of embryology itself. Until we learned how to preserve embryos and

imbed, cut, and stain them and learned to reconstruct them graphically or in paper or wax, progress was very difficult.

When tracing the history of embryologic ideas, one is impressed with the fact that anything approaching a correct view of individual development is a very recent thing indeed. This is partly due to the fact that men preferred to trust their minds rather than their eyes and hands and because speculation was easier than observation from the very beginning. It has always been more convenient to use the subjective than the objective method. Anyone can sit and think upon anything he chooses, anywhere and at any time, without the least inconvenience except that of thinking, but in order to make observations it is necessary to bestir oneself, and experimentation is especially troublesome. Hence, speculations long were numerous but observations few, and John Hunter's advice, "Don't think. Try," long remained unobserved and experimental embryology hence is mainly a child of today.

When one recalls the long era during which human beings have existed upon earth and how brutish the life during much of that period has been, it would be strange, indeed, if someone did not note tens of thousands of years ago that the earlier stages in the development of mammals are very similar. It is difficult, indeed, to understand how some of the very fanciful ideas of man's origin could have appealed to or satisfied anyone.

The oldest conceptions on everything must necessarily remain unknown to us, and it is scarcely possible to realize fully the difficulties presented by such questions as that of sex and procreation to early writers and investigators. The great Haller began the chapter on conception in his justly celebrated work entitled "First Lines of Physiology" by saying, "This is a very arduous investigation, as we propose to discover the changes which take place in the inward parts of woman when a new creature begins to germinate. . . . We shall relate, in the first place, therefore, those things which experience shows to be true; and then to add those hypotheses by which learned men have endeavored to supply such things as are not evident from the subject itself. How few things are ascertained on this subject, and how difficult they are ascertained, I have learned by too much experience." As late as 1775 this great physiologist, in the introduction to his physiology, is said to have declared that nature hides the early beginnings of the new individual behind dense blackness and reveals nothing about the ovum, which she permits to be incubated.† If this was the case in 1775, then

† Although this statement is repeated upon good authority, I was unable to find it in the introduction to the editions of Haller's "Physiology" of 1747, 1751, and 1764. However, I did find a similar expression in the introduction to the *Dissertations of Spallanzani*, where the latter says, "In times past, I acknowledge that generation, both in animals and plants, was involved in darkness impenetrable to the human eye; but since the appearance of Haller and Bonnet, this gloom has been rendered much less thick." Since Erasmus Darwin in 1801 also says that "The process of generation is still involved in impenetrable obscurity," it is not improbable that this expression may have been handed down from the past.

\* From the department of anatomy, Stanford University.

\* This paper will be printed in three or more parts. References will be printed with the last article of the series or in the reprints. This is the first paper of the series.





Fig. 1.—The commonest, though probably not the best, likeness of Redi.

how much more it must have been true in the days of Aristotle who, when greatly puzzled about the generation of bees, wisely wrote: "The facts have not yet been sufficiently grasped; if ever they are, then credit must be given to observation rather than to theories, and to theories only if what they affirm agrees with observed facts." It is well for us not to forget that Aristotle based his belief in the origin of fleas from snow, animals from fire, eels from mud, and fishes and insects from various other substances, upon conclusions drawn from observations. According to Aristotle, ". . . Nature passes in an unbroken manner from inanimate things to animals, through forms of life which are not animals, in such a way that one class seems to differ very little from another in the part where they border on each other." Lones, after whom this sentence is quoted, says that this idea was foreshadowed by other Greek philosophers and that the vital principle, which according to Aristotle could generate life out of "earth, mud, sand, foam, or dew" was "related to living bodies" as form to matter, or sight to the eye, and that "if an eye were a living being, then sight would be its vital principle." Aristotle knew the placenta of a shark, which Johannes Mueller rediscovered in 1839, and it need not surprise one that he thought animals had a vegetal and an animal period of existence, the former persisting up to the development of the heart.

It is pertinent to recall here that Bastian, a leading British biologist who, in the middle of the nineteenth century, reached the conclusion that bacteria can arise spontaneously in sterilized solution, did so on the basis of experiment. No wonder that this announcement evoked the ejaculation "Mon Dieu! mais c'est non possible!" from Pasteur during the course of an international congress of biologists, held in London, for Pasteur had finally shown that such a thing was indeed impossible. As is well known now, the difficulty with Bastian's experiments lay in the inadequate sterilization of his solutions.

#### OLD IDEA OF SPONTANEOUS GENERATION

As is well known, the old idea of spontaneous generation lives on among the laity today. Who has not heard that thread worms arise from the hairs from the manes and tails of horses, which accidentally fell into the watering trough while the animals were drinking. Indeed, many of the laity still hold to the words of Ross, uttered in the seventeenth century in reproach to Sir Thomas Browne's disbelief in spontaneous generation. The former wrote, "So may he doubt whether in cheese and timber worms are generated; or if beetles or wasps in cow's dung; or if butterflies, locusts, grasshoppers, shellfish, snails, eels, and such like be procreated of putrefied matter, which is apt to receive the form of a creature to which it is by formative power disposed. To question this is to question reason, sense, and experience. If he doubts this, let him go to Egypt and there find the fields swarming with mice, begot of mud of the Nilus, to the great calamity of the inhabitants."

In spite of Redi's crucial experiments on the generation of some insects, the idea that animals could arise without parentage lived on long thereafter even among leaders in science such as Redi and Harvey. It was not rejected by "natural philosophers," it seems, until 1715, in which year an English natural philosopher, G. Cheyne, wrote: "Nobody nowadays that understands anything of nature or philosophizing can so much as imagine that any animal, how object soever, can be produced by an equivocal generation or without of male and female parents in the same or in two different animals. . . . I shall have occasion in the following chapter to make it evident that every generated animal is produced from a preëxistent animalcule of the same species, and that every vegetable arises from a small plant of the same kind, and it is impossible, it can be otherwise upon our adversary's scheme of admitting nothing but matter motion; for if animals and vegetables cannot be produced from these (and I have clearly proved they cannot) they must of necessity have been from all Eternity." Redi himself wrote: "Before returning to my argument, I cannot refrain from saying that I do not consider it a great sin against philosophy to maintain that the worms of plants are created by the same natural principle that produces the fruits of the plants. . . ." Redi





Fig. 2.—A reproduction of an illustration from Redi representing the development of the "cherry fly" as he knew it. Redi could not ascertain or understand how the egg which gave rise to the "worm" could get into the cherry.

could not learn how the eggs of insects could be introduced into fruit, and made the above comment in connection with Fig. 2 here reproduced.

In examining and judging the scientific ideas of older writers it always is necessary to recall the temper of the time in which they lived, the store of accumulated knowledge and the available methods at the disposal of investigators. The great men of the past whose scientific conceptions on sex, pregnancy, and prenatal development often seem so strange to us did not lack intellect, but proven experimental methods and accumulated knowledge. They lacked a scientific background—a store of facts—and were groping in the dark far more than are we of today, regarding some of the very problems which perplexed them. Even we are still largely upon an uncharted sea regarding questions of sex, heredity, etc., and some future age will probably consider our speculations upon these things quite as peculiar as we regard those of our distant forbears. He who fails to consider pioneers in their proper surroundings will hence do them a great injustice. Even Harvey and Redi allowed for the occurrence of equivocal generation because they could not account for all forms of animal life on any other basis even as today it remains undecided whether the bacteriophage is a living or a nonliving agent.

#### OLDEST RECORDED IDEAS ABOUT PROCREATION

The oldest recorded idea about procreation is that man as well as other animals arose from putrescent material, from excrements, through the agency of ferments and decomposition, and this idea is still contained in the customary funeral services of the Christian church. Saint Paul, writing in Corinthians, said that we had our origin in corruption, and Jonah asserted that the Lord raised him out of corruption. What our early forbears saw happening in dead bodies and in refuse near their habitations or in the fields probably was partly responsible for the idea that life arises in corruption.

The occurrence of worms in manure heaps was attributed to the presence of the vital spirit still contained in "animal residuum" or feces, though it is not at all unlikely that the idea that putrefaction has generative power may have been suggested by the non-aesthetic aspects of mammalian reproduction; by forbidding geographical relationships of some of the reproductive organs of mammals. Although it is not likely that many human beings were fastidious during the early days of civilization, certain forbidding aspects could not escape attention and long before the days of Sir Thomas Browne there must have been those who felt, if not expressed, his repugnance to our "trivial and vulgar form of coition" and shared his wish that human beings might procreate like trees instead.

In the alchemical treatise *Splendor Solis*, by Trismosin, which appeared in 1582, this mystic teacher of Paracelsus, and seeker for the philosopher's stone, still adopted the idea that all life came out of putrefaction, for he wrote: "By way of allegory we take the hen's egg; in this the form of the chicken cannot take shape without the presence and aid of accidental form, which is the intermixture of the red with the white, by virtue of the heat coming from the hatching hen, and although the egg is the hen's material, nevertheless it cannot develop either its real or accidental form otherwise than by putrefaction, which is caused by the influence of the warmth. . . . In the middle of the Yolk there is the Fifth Element, out of which the young chicken bursts and grows. Thus we see in the egg all the elements combined with matter to form a source of perfect nature."

Empedocles it seems spoke of a genus "oviparum arboreum" or egg-bearing tree, and Fabricius, the teacher of Harvey, declared: "Now that the contemplation of the formation of the chick from the egg is of very ample scope, appears from this, that the greater number of animals are produced from ova. Passing by almost all insects and the whole of the less perfect animals, which are obviously produced from eggs, the greater number of the more perfect are also engendered from eggs." And then he goes on to particularize: "All feathered creatures; fishes likewise, with the single exception of the whale tribes;

crustacea, testacea, and all mollusca; among land animals, reptiles, millepedes, and all creeping things; and among quadrupeds, the entire tribe of lizards. . . . "The foetus of animals is engendered in one case from an ovum, in another from the seminal fluid, in a third from putrefaction: whence some creatures are oviparous, others viviparous, and yet others, born of putrefaction or by the spontaneous act of nature, automatically." Nevertheless, Fabricius described the fetal membranes and apparently saw and described the ovarian vesicles later rediscovered by de Graaf and named after the latter.

Anyone who has read Redi will recall that he states that according to Lactantius, the Stoics believed that human beings sprang forth from the earth as mushrooms do in soil which is rich, warm, and moist. The Egyptians, Ethiopians, Phrygians, Phoenicians, and Athenians each claimed to be the ancestors of the human race, and it is recorded that the Athenians wore golden grasshoppers in their hair to show that they themselves arose directly from the soil even as grasshoppers were supposed to do at that time.

Mother earth was at first regarded as a clumsy worker so that the earliest creatures came "hastily and in disorder from her womb," there being many monsters among them. "But at last the great mother, perceiving that such monstrosities were neither good nor likely to endure, and having become more expert in the art of generation, succeeded in producing men and animals according to their species. Democritus bears witness that men first appeared in the form of small worms, which little by little assumed human shape; or, as Anaximander relates, on escaping from the womb of Earth they were enveloped in a kind of rough, spiny skin, not unlike the burr of a chestnut. After a long period of fertility, during which many monstrous and marvelous generations were brought forth, the Earth Mother became at last exhausted and sterile and lost her power of producing men and the larger animals, still she retained enough vigor to bring forth (besides plants that are presumed to be generated spontaneously) certain small creatures such as flies, wasps, spiders, ants, scorpions, and all the other terrestrial and aerial insects, called by the Greeks "entomadzoa" and by the Latins, "insecta animalia." The schools, both ancient and modern, all agree in this, and constantly teach that the Earth has continued to produce these creatures and will produce them so long as she exists. They do not, however, agree as to the manner in which these insects are generated, nor how life is communicated to them; for they say that not only does the Earth possess this occult power, but that it is possessed by all animals living and dead, also by all things produced from the Earth, and finally by those which are about to decay and return to dust."

#### THE THEORY OF METAMORPHOSIS

The idea that life arises in corruption later became known as that of metamorphosis, and

survived till the middle of the seventeenth century or the time of William Harvey, who wrote: "Whilst the higher animals produced from eggs are perfected by a succession of parts, the lower creatures that arise in this way, or that are formed by metamorphosis, are reproduced at one effort, as it were, and entire." It is surprising that Harvey, who filled so important a place in the history of embryology, also allowed that "imperfect animals" might arise "out of putrescent material, the drying of a moist substance or the moistening of a dry one." It matters not what Harvey meant by imperfect animals, although it may be recalled that he regarded the lion and cock as perfect and that imperfect animals were those that were not known to arise in their final form, directly from an egg, but passed through an intermediate stage or scolex of Aristotle, such as the pupal or larval form. What matters to us is that one of the pioneers in embryology still felt prompted to recognize putrefaction as a possible source of animal life. Although Harvey is usually considered the author of the phrase "omne vivum ex ovo," this phrase has not been found in his writings. However, the idea was dawning there—and that is the important thing—for Harvey declared: "We, however, maintain (and shall take care to show that it is so), that all animals whatsoever, even the viviparous, and man himself not excepted, are produced from ova; that the first conception, from which the foetus proceeds in all, is an ovum of one description or another, as well as the seeds of all kinds of plants. . . . The history of the egg is therefore of the widest scope, inasmuch as it illustrates generation of every description. We shall, therefore, begin by showing where, whence, and how eggs are produced; and then inquire by what mean and order and successive steps the foetus or chick is formed and perfected in and from the egg."

The idea that lay behind the conception of metamorphosis was in a measure the same as that upon which the earlier idea of equivocal or spontaneous generation was based, but according to the older doctrine life could arise only from putrescent material, according to the newer, also from inorganic substances. Since putrescent material is of necessity organic, the idea of the origin of life from the inorganic was an addition which faces us today. In older literature two forms of generation, the univocal and equivocal, are spoken of. Anything generated univocally arose from a thing of the same kind and a creature which arose equivocally was thought to arise spontaneously from quite different substances.

According to Esser, Susruta also was a preformationist and Caraka (or Charaka) is said to have had a similar conception. Vedic writers from 500 B. C. held that the conceptus forms from the union of sperm and blood from coitus during menstruation. In the Garba-Upanishad or Secret Teachings on the Embryo, it is stated that



a nodule appears in one night; a vesicle in seven and a node in a fortnight. This node is said to become attached in one month, the head appearing in two months, the feet in three, the tarsals, abdomen and hips in four, the vertebral column in five, and the nose, eyes and ears in the sixth. The soul was said to enter during the seventh month.

Nothing seems to be known regarding the conceptions upon development from the old Syrian and Egyptian civilizations, but it is well to remember that this does not imply that these people did not concern themselves with these outstanding matters. More definite records of an interest in and some understanding of the problem of ontogenesis seem to be found in the writings of the ancient Greeks, many of whose conceptions fortunately are preserved for us. It is true that Francis Bacon wrote:

"Now, from the systems of the Greeks and their subordinate divisions in particular branches of the sciences during so long a period, scarcely one single experiment can be culled that has a tendency to elevate or assist mankind, and can be fairly set down to the speculations and doctrines of their philosophy. Celsus candidly and wisely confesses as much, when he observes that experiments were first discovered in medicine, and that men afterwards built their philosophical systems upon them, and searched for the assigned causes, instead of the inverse method of discovering and deriving experiments from philosophy and the knowledge of causes; it is not, therefore, wonderful that the Egyptians (who bestowed divinity and sacred honors on the authors of new inventions) should have consecrated more images of brutes than of men, for the brutes by their natural instinct made many discoveries, whilst men derived but few from discussion and the conclusions of reason."

The earliest Greek ideas came from the early philosophers, but their reflections could not form a continuous story, or even roughly approximate the truth, for the actual story of prenatal development is too intricate to be formulated by mere speculation. The important thing for us, however, is the fact that these older people attempted to obtain light on the problem of prenatal development and that speculations upon the subject recur in so many of their writings. Among the problems which they considered were those of the origin and nature of the genetic substances, of the rôle of the sexes in procreation; of the determination and the causes of sex and of the nutrition of the fetus. They also speculated as to which of the organs of the body develops first or plays a guiding rôle. This question once caused a great deal of controversy, and was spoken of as the question of the primacy of the organs. The heart, the liver, and the brain each in turn was regarded as the most important or influential or leading organ in development.

Department of Anatomy, Stanford University.

(To be continued)

## CLINICAL NOTES AND CASE REPORTS

### SYPHILIS

#### IN RELATION TO OCCUPATIONAL INJURIES

By HARRY E. ALDERSON, M. D.  
San Francisco

TWO recent cases of late lues in our practice presented industrial features which are worth recording. It is well known that old luetics are apt to develop gummata at sites of traumatism. When this occurs as a result of injuries sustained at work the case may be classed as "occupational" until the lesions are eradicated by treatment.

The following two case records are of interest in this connection:

Mr. C. C. (No. 25948), a Mexican carpenter, thirty-nine years old, presented a typical non-ulcerating gumma extending across the left upper orbital margin. There was a similar smaller lesion at the inner end of the right eyebrow which had been present for several months. The former lesion appeared shortly after the patient was injured in that spot by a piece of lumber on which he was working. An abrasion resulted and it never healed, resulting finally in a typical syphiloma. There was no history of syphilis and the only other evidence found was a strongly positive blood Wassermann. Under neoarsphenamin and bismuth the lesions disappeared.

Mr. P. C. (No. 25190), an Italian laborer, thirty years old, presented a typical nonulcerating syphiloma at the right inner canthus. His blood Wassermann was strongly positive. It was impossible to obtain a history or other evidence of syphilis. About two months previously, while cutting wood with a "rip saw" a splinter of wood struck the side of his nose near his eye. The patient pulled out the splinter and there was a little bleeding. The wound never healed and the syphiloma gradually developed. Under neoarsphenamin and bismuth injections it subsided rapidly.

In each of these two cases responsibility was accepted by the insurance carriers and the necessary treatment to eradicate the lesions only was authorized.

490 Post Street.

### A FOUR-BLADED VAGINAL SPECULUM\*

By SAMUEL HANSON, M. D.  
Stockton

IN cases of great vaginal relaxation a good exposure of the cervix for purposes of examination or treatment can be gained only by means of a four-bladed speculum. An instrument of this type was recently devised by Nelson<sup>1</sup> which appears to be very satisfactory. However, it occurred to me that a special instrument is not necessary for this purpose, and that equally good results can be obtained with an instrument formed by the combination of two Graves' bivalve specula. This can be accomplished very readily as follows:

A Graves' speculum is introduced into the vagina in the usual manner. A second Graves' speculum of the same size or smaller is inserted and snugly adjusted within the first one so that

\* From the San Joaquin General Hospital.





Fig. 1.—A four-bladed vaginal speculum.

its blades will open freely in a horizontal plane (Fig. 1). The protruding lateral vaginal walls can then be well retracted and a very clear view of the cervix secured.

1009 Medico-Dental Building.

#### REFERENCE

1. Am. J. Obst. and Gynec., 17:112, 1929.

## ACTINOMYCOSIS OF PANCREAS

### REPORT OF CASE

By H. H. PARSONS, M. D.  
*San Bernardino*

A SURVEY of available literature fails to disclose a report of a case of pancreatic actinomycosis, so I am submitting the following for record.

A married woman, thirty-five years of age, who had never lived in the country, was taken sick in November 1927 with what she called indigestion. These attacks were mild and ceased after a few days. On January 6, 1928, she developed somewhat similar symptoms, but they were more severe and were accompanied by vomiting, epigastric pain, and marked constipation. These symptoms continued and on January 11 the pain became excruciating, the vomiting persistent, and there was complete obstipation. At this time I, with Drs. C. N. Greusel and Ross C. Martin, was called to see the patient.

### REPORT OF CASE

I found a well-nourished woman, apparently in shock, vomiting and complaining of severe epigastric pain. The pulse was 120 and the temperature 99.4 degrees. The abdomen was but slightly distended and there was only scant rigidity in the epigastrium, but there was marked tenderness all over the epigastric region, the lower limit of tenderness being well defined by a transverse line just above the umbilicus.

The white blood count was 41,200. The urine had specific gravity of 1017, was acid and contained no sugar. There was a trace of albumen, a few hyaline casts, red cells and pus cells. Acetone and diacetic acid were present in large amounts.

As the patient had had a previous section a diagnosis of intestinal obstruction was made, operation advised, accepted and carried out at once.

A midline epigastric incision was made and on opening the peritoneum clear fluid was found. No obstructive lesion could be found. The gall-bladder contained a few small stones, but the ducts were free. No stomach lesions were found, but on elevating the stomach the pancreatic area was found to be edematous. This was a mucous edema and not serous. This edema extended over the pancreas and retroperitoneally along the root of the mesentery and into the gastrohepatic omentum. This mucous substance was streaked with black.

On exposing the pancreas it was found to be of a yellow color with dirty black areas scattered through it. The pancreas was not hard and was but slightly enlarged. A diagnosis of pancreatic necrosis was made and tube drainage to the pancreas instituted, the retroperitoneum being sutured about the tube and the incision being closed up to the tube.

For about twenty-four hours she was in a very critical condition, being pulseless most of the time. However, she finally responded to stimulants and intravenous glucose solution.

For about a week the discharge consisted of the thick mucous material streaked with black, when the character of the discharge became purulent and profuse in amount. With this change in the character of the discharge there appeared in the pus small rounded masses from smaller than pin head to as large as a half grain of wheat. Some of these were yellowish, some copper colored, and others were tinged with red. Staphylococci also were present in the pus. Specimens submitted to Brem-Zeiler-Hammack were reported as actinomycosis.

On January 13, sugar appeared in the urine and on January 18 there was 4.5 per cent sugar and 3.2 per cent albumen by bulk, both of which had decreased to heavy traces by January 23. The fever was of a remittent type, ranging to 102 degrees, and the pulse remained fairly constantly at 120.

Vomiting continued at intervals and she complained of almost constant nausea. As soon as the diagnosis was cleared up treatment with intravenous sodium iodid was started and the pancreatic area irrigated daily with one per cent copper sulphate solution and later a weak aqueous solution of iodine was used. Potassium iodid was tried but invariably produced vomiting, so had to be discontinued.

On February 23, treatment with colloidal copper (Cuprase) by intramuscular injection was started, one ampoule being given every fourth to fifth day. After the fifth injection the discharge began to diminish and the actinomycotic granules disappeared, the temperature began to decline and reached normal on March 8, 1928.

About this time the vomiting became more frequent, she lost rapidly in weight, her appearance became drawn, and she complained of a metallic taste. The sinus by this time had ceased to discharge and was about closed.

On March 28 she suddenly developed convulsions and died. Autopsy was not permitted.

### COMMENT

The interesting points about this case are the antecedent symptoms, the high white count, the retroperitoneal mucous edema, remittent fever, glycosuria which cleared up, the persistent vomiting, the apparent response of the infection to colloidal copper, and the terminal convulsions.

I believe that should I have occasion to use colloidal copper again I would increase the interval of treatment, and upon the slightest evidence of copper saturation would stop its use until such symptoms had cleared up. I believe that colloidal copper is a rational and effective treatment for actinomycosis.

668 E Street.



# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions of subjects for discussion invited.

## WHAT IS A PREVENTORIUM CHILD

### *On Selection of Entrants*

CHESLEY BUSH, M.D. (Livermore).—So-called "preventoria" were established in the days when the origin and development of tuberculosis in childhood was not so well understood as it is at present. Consequently the standards for admission were somewhat hazy, and there has been a marked difference in theory and practice in various parts of the country. Statistics from various "preventoria" are not comparable. Some admit children sick with all forms of tuberculosis, including lung lesions, and retain children for long periods of time and are really sanatoria for children. Others exclude children with active pulmonary lesions and other types of active tuberculosis, admit children contacting to open cases of tuberculosis and admit all types of malnourished and under-par children irrespective of cause. Some exclude morons and mental defectives and children who are psychiatric problems; others are caring for them over long periods of time. The aim of other preventoria is to retain children no longer than two months; others retain them from six months to years.

In order to create some standards in this chaos, the National Tuberculosis Association appointed a committee in 1927 to study this problem and their report recommended the following standards of eligibility:

1. Children exposed to open tuberculosis in the home or in whose immediate family there has been a recent death from tuberculosis.
2. Children who have had tuberculosis, whose lesions are not active and who appear to be in need of further care and observation.
3. Children suffering from malnutrition.
4. Children who tire easily and are not able to carry on their class work.
5. Children frequently absent from school because of colds, bronchitis, etc.
6. Children suffering from rheumatic heart disease in Class 1, *c* and *f* of the classification of the American Heart Association.

This year, because of increasing knowledge and experience with tuberculosis in children, the National Association has appointed another committee to restudy this problem and recommend new standards both of eligibility and care.

It has been found that the diagnosis of existing tuberculosis in childhood is not the simple procedure of judging underweight children and those with chronic respiratory infections, but is a matter of more accurate diagnosis by means of the tuberculin test and x-ray films. It has been

found that children with mild lesions of the parenchyma of the lung may be giving off tubercle bacilli despite apparent good health. Further, that many children with tuberculous infection dormant in the tracheobronchial lymph nodes do well when put on a modified school program where they receive extra rest and extra nutrition without being sent away from their homes, provided their source of infection is eliminated. All these findings indicate that a preventorium must be intimately associated with facilities of doing intensive examination work among school children and with the families of known tuberculous patients as well as with a sanatorium for the care and isolation of those children with parenchymal lung lesions. There is no useful purpose of treating malnutrition which is due to social and economic reasons in the home, and hence there must be intensive social work amidst this group. However, there appears to be no reason why preventoria should be confined exclusively to tuberculous children as long as the dangerous types are excluded. The usual routine is beneficial to other types of under-par conditions.

I would suggest that present standards of eligibility be as follows:

1. Children reacting positively to the tuberculin test, without evidence of parenchymal lung lesion, who remain substandard in health after modified school or home routine fails.
2. Children discharged from sanatoria or medical care elsewhere whose tuberculous lesions have disappeared or have become fibrotic and calcified with all evidence of healing.
3. Malnutrition from other than social or economic cause.
4. Children for brief periods of health education.
5. Children suffering from rheumatic heart disease in Classes 1, *c* and *f* of the American Heart Association (provided facilities for immediate hospitalization are available in case of need).
6. Children subnormal mentally should be excluded.

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### *On Behavior Problems*

J. LLOYD EATON, M.D. (Latham Square Building, Oakland).—Preventoria are concerned primarily with the physical aspects of health. Therefore in selecting children for a preventorium, behavior difficulties should be considered only as incidental to physical status; "problem children" should only be accepted when their emotional maladjustment accompanies poor physical condition. In fact, it is inadvisable to accept the more serious type of behavior problem, even

though the child in question presents a "typical picture" from the medical point of view. There is no question but that emotional instability has a profound effect on the health of the child, as well as on his happiness and ability to make satisfactory adjustments later on in life. Neither is there any doubt but that the time for the treatment of such problems, in order to bring about permanent results, is in early childhood. The preventorium undoubtedly meets several of the major requirements for the treatment of such problems. However, the preventorium—generally handling a large group with a minimal staff—is designed for children who will fall into a set routine with little individual supervision; it can not cope with children who do not fit into the prescribed program, who are apt to upset the routine of the other children, and who call for workers trained in handling psychological problems. Therefore the type of child who is so seriously maladjusted as to be a definite disturbing influence in "camp life" should be excluded.

However, we could not, even if we would, exclude all behavior problems from the preventorium. In fact, such children will be found in much larger numbers among "preventorium type" children than in the general population. Naturally, such children are not admitted to the preventorium with the diagnosis of "behavior problem," but it is impossible to overlook the great incidence of such cases among the children selected for preventoria care by the usual criteria. We have not far to look for the reason for this striking "coincidence." The major causes of children being "under par" are probably threefold: first, illness on part of child; second, unsatisfactory home conditions (perhaps temporary) such as illness in family, financial strain, friction, etc.; third, parents who are incapable of, unwilling to, or don't know how to, care for children properly. Obviously such conditions are sufficient to, and frequently do, breed emotional maladjustment as well as malnourishment, etc.

But of even graver significance than this co-existence of physical and behavior problems, both arising from the same sources, is the fact that frequently malnourishment and related conditions are directly *due* to nothing more nor less than behavior problems. For example, poor sleeping and eating habits are surprisingly common in spite of the fact that most parents recognize the importance of adequate rest and a good balanced diet in sufficient quantity. What they fail to recognize is that all children will sleep well, and will eat readily whatever is given them (except, of course, in the relatively rare cases of allergic protein sensitization) if they have been properly handled. Yet many children are reported as, *e. g.*, "not being able to eat cereals," "refusing to drink milk," or "not liking vegetables." Often the parents even offer explanations: "I never could eat eggs"; "Johnny's father doesn't like milk either." In such cases the unsound psychological procedure at the root of the matter is obvious—it is parental suggestion. Such poor eating habits cause malnourishment, making the child susceptible to all the various infectious diseases. Natu-

rally, as the physical resistance of the child is lessened it becomes irritable and "nervous," its appetite is apt to be poor, its bad habits are aggravated, and physically it is depleted even more. This vicious cycle, having started on some such simple habit basis as one of the examples given above, can go to serious lengths. Obviously, building up such a child's health at a preventorium will do little lasting good if the child is allowed to go home and resume its old habits.

A large number of these minor behavior problems clear up automatically under the preventorium routine; some, in fact, so speedily that, although the children were "problem children" while at home, they are not even recognized as such at "camp." There will be more mention of this group later.

There are several reasons why this type of institution is so ideal for the treatment of these cases, and why it yields such markedly good results:

1. The child is removed to an entirely new environment, and the disturbing elements and familial associations existing in the home are no longer present.

2. The preventorium offers a calm, unexciting atmosphere, free from the petty irritations and excitements which probably prevail at home.

3. The institution provides a regular routine which is strictly adhered to, and while this is important for a child's proper physical development it is even more helpful in establishing emotional stability since there can be no argument or haggling when the program provided is a thoroughly consistent one.

4. Finally, it is difficult *not* to conform in the face of the example of a large group of children who *do* conform. Some children respond readily to authority and the good influence of their "peers"—and others delight in defying such authority. But it is a rare child, or adult for that matter, who can bear to lose caste with his *own* group. Therefore the value of placing a child with a group of children who take pride in "playing the game" according to the rules and who watch with eager interest for the desired results cannot be overestimated.

The child, then, returns to its home in much better physical condition, which automatically alters its whole outlook on life and renders it emotionally more stable. The child has been enabled to get a new start under new, ideal conditions, and it is easier to carry over into the old situation than to get off to a new start under the old, familial conditions. In the meantime, while the child has been away from home, an ideal opportunity has been offered to make over the home to better suit its needs and to prepare it for the return of the child—this, of course, provided the facilities are available for such rehabilitation of the home. If the home is "unrehabilitable" the child should not have been accepted in the first place.

A later paper in this series will deal with the problem of after-care in detail, but I merely want to stress here the importance of after-care in cases of behavior difficulties, and the importance of behavior difficulties in after-care. In many cases



the prescribed program is not being carried out at home, in spite of good intentions, because the mother does not know how to enforce such a program—the child has fallen back into its old, undesirable habits. Here the parents need instruction as to how to deal adequately with the situation.

Special mention should be made here of the child, referred to above, who adapts himself so readily to a new regime that behavior difficulties which existed at home are not in evidence at all at the preventorium. Failure to recognize the fact that such behavior problems did exist will lead to the (false) assumption that this child may be expected to return home and exhibit only the desirable traits evidenced at "camp." Chances are, of course, that he will not. An adequate system for checking on the emotional maladjustments which are so detrimental to health, and providing satisfactory after-care, would include a thorough investigation of children's behavior symptoms *before* entrance into the institution.

In private practice the physician often meets with this type of child who is under par but who shows no pathologic changes. Many physicians dismiss these patients with a few general instructions and some such comment as: "Naturally Mary is thin—her mother was thin, too, as a girl," or "You can't expect Walter to ever be really robust—he's the same 'thin type' as his father." How unfortunate that those parents who are interested enough in their children's welfare to take them to the doctor should be turned away in this manner when there is so much that could be done. For these under-par children can be "built up" if the physician will only: (1) Recognize them as medical, and often psychological, problems. (2) Make a study of the child, the parent, and the home. (3) Devise a health regime and outline it in detail, preferably in writing, to the parents (a visit of inspection to a preventorium on the part of the parents is often helpful). (4) Keep the child under observation.

This will, of course, involve close and frequent contact over a considerable period of time. Generally, however, in view of the striking results obtained and the enthusiasm of the parents, it will prove well worthwhile in the long run.

*Conclusions.*—The preventorium should not accept children who are seriously maladjusted emotionally. However, behavior problems are bound to loom large among preventorium-type children, often as contributing causes to, and not infrequently as the sole cause of, poor physical condition. Such children respond readily to preventorium care, yet the "follow up" is of major importance in such cases. The recognition and treatment of these problems in general medical practice is a much neglected field, but is one which offers gratifying results.

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#### *On After-Care of the Preventorium Child*

CHARLES P. DURNEY, M. D. (Alum Rock Sanitarium, San Jose).—Unfortunately, a child admitted to a preventorium is to a certain extent im-

mediately endowed by acquaintances and friends with the stigmata of disease and this disease, by reason of the origin of this very valuable institution, is tuberculosis. The idea resulting in the establishment of preventoria was conceived in the minds of those particularly interested in tuberculosis. Its name denoted a refuge, the ideal of which was to prevent the development of tuberculosis. It was quite natural, and in order that children who, by reason of known contact, and those actually presenting indications of infection but without indications of active tuberculosis, should be selected as the principal eligibles.

With the growth of such institutions and their established popularity, there has come a distinct modification of the original concept, and now we find listed as eligibles children in the six to twelve age period who are described not as "pretuberculous" or "tuberculosis suspects," but falling in that group much wider in its limitations and termed the "underprivileged." Moreover, the preventorium, as it is established and operating today, is frequently asked to admit and train the "problem child." I mention these points in order to show that the definition of a preventorium must of necessity be modified considerably and that when the question of after-care is considered we must first understand the reason for any particular child's sojourn in that worthy institution. If we consider the child because of his poor physical status, his contact with open tuberculosis, his doubtful or suggestive superficial or deep adenopathy, his positive skin reactions to tuberculin or, in brief, the very strong likelihood of his being a pretuberculous youngster, then after his discharge, assuming that he is benefited, as do the vast majority of these little fellows, the problem of his after-care, it seems to me, must be to a considerable degree quite different from that of his fellow inmate who came from a fairly normal home environment with no known contact with tuberculosis or any other disease, but was referred to and admitted by the preventorium because of his parent's or guardian's inability to cope with his irregular or even vicious habits, his disinclination to take proper food, perhaps the presence of a bad mental standard—in other words, a "problem child," or "underprivileged child," or a combination of both. It is admitted that we can have in combination a pretuberculous and a "problem child," but it is frequently found in preventoria today that individuals falling under these separate classes are admitted and brought back in a remarkable manner to that condition which we speak of as normal or average. In the after-care, when everything is considered, we can be quite safe and quite brief in setting down a blanket order in which we may simply direct that the child carry on the same regime which brought about the oftentimes remarkable improvement while in the institution.

This rule is easy to formulate. It is quite a different thing to have it followed, for, while the child has learned to accept a new psychology generally and has been taught and helped to practice the rules of simple, regular living which have



brought him back to normal health and happiness, it would be foolish indeed to suppose that those sharing his former environment have also developed and put into practice a new mode of living; or that they, even though intelligent and interested in the child's welfare as they may be, will see the necessity for instituting changes at all as the child is now apparently quite well. It is building on uncertainties to ask the family physician to carry on. He was unable to do it in the first place, and now that the child returns apparently well it is quite unlikely that he will even contact the family physician.

Some institutions present to the parents or guardians a special form upon which is printed certain instructions. In the case of the child who has been an inmate because of pretuberculous indications, the most important line of instructions on this form is that which directs the prompt return of the youngster for frequent re-examinations. Experience has taught us that we should be ever watchful; and certainly so when this preventorium graduate is passing through those age periods in his growth toward maturity or young adult life, in which activity of a latent or dormant infection into actual disease so frequently occurs. Therefore, if we have any responsibility whatever for this interesting specimen of humanity we should make this "follow-up" mean something and not allow it to become a perfunctory clinical habit.

A most effective plan has been formulated and worked out to a very practical and functioning unit of our school system and it solves to a remarkable degree the problem which presents itself in the after-care of a preventorium child, and this is the so-called "Sunshine School." Here, for at least nine months in the year, the preventorium graduate can continue along very much as he did in the institution. It is interesting to note at this point that the Sunshine School is supplanting to a large extent the preventorium. And, too, I have been very much interested in having workers in the Sunshine School plan express regret that these schools cease to operate during the months of public-school vacation. They say that during this vacation period many of their charges lose ground.

What is it in the preventorium or the Sunshine School that brings about the oft-times startling improvement? I believe that the reply to this question lies in the simple and regular routine of life to which the child finds it necessary to conform and learns to appreciate.

To summarize: First, the after-care of a preventorium child is based upon a definite understanding of the particular reasons for that child's admission into and care in the preventorium. Second, every child in a preventorium is not there because he is pretuberculous. He may be a "problem child" or an "underprivileged child." Third, tragic experience has conferred upon us knowledge of the insidiousness of tuberculosis and its potentialities for evil. Therefore, we should stress the well known "follow-up" and make this a careful and frequent procedure and over a pro-

longed period in those institution graduates in the pretuberculous classification.

It is reasonable to assume that children who are discharged from preventoria in the regular manner leave with a clean bill of health, and certainly all those who have had the pleasure and privilege of observing these youngsters on their discharge can subscribe to this assumption. Then we can further assume that their after-care need but follow the usual and commonly accepted rules of life which govern the care and conduct of any other normal, healthy children.

\* \* \*

#### *On Importance of Social and Behavior Problems*

HAROLD GUYON TRIMBLE, M. D. (508 Sixteenth Street, Oakland).—In reviewing the previous papers on three most important phases of the preventorium child, each is dominated by the same major theme—the fact that the preventorium phase of the child's care is but a small though essential part of his individual problem.

It is of interest to follow the historical development of this idea. It is but a short ten years ago that the summer camp of six weeks' duration for children who were contact cases and selected on a basis of height and weight tables was our ideal. How impressive it was to report the number of pounds gain of each child on their return home. It took but two or three years to show that this gain and general improvement was rarely held more than a few weeks. The child was back then where it had started. The twenty-four hour all year round preventorium was the next step, growing directly out of the summer camp idea—using often the same site and equipment. Admitting these children on the basis of more careful medical study including x-rays and tuberculin tests and keeping them from six to twelve or more months, gave but 50 per cent permanent improvement—a poor showing. In studying a group of such failures there was found to be a serious fundamental social defect in the home in 80 per cent. In other words, we were attempting an impossible thing. We failed to recognize that, in the long run, permanent results were a matter of solving the social and behavior problems for each individual (or providing a satisfactory substitute) as well as caring for the purely physical problem. There are some factors for which society has as yet found no real remedy, such as poverty, fundamental lack of understanding, broken-up homes. The home being inadequate we have turned to the school, with the happy result that in this fashion we can expect 75 per cent reasonably permanent progress over a period of years.

Such are the follow-up figures on the first two hundred "graduates" from the Contra Costa County preventorium, and I believe they are representative. No new machinery need be created for these purposes, but existing facilities and personnel can be readily adapted and coordinated. Of tremendous help in pulling together these agencies is a sympathetic, understanding, tactful, well trained medical social worker.



We have come to visualize and to put into practice the set-up for the care of this type of child in the following fashion.

SANATORIUM  
PREVENTORIUM  
SCHOOL SUNSHINE CLASS  
PHYSICIAN + VISITING NURSE  
THE HOME

One can start any place in this scheme and work in either direction, but the essential fact remains that unless these units are coördinated the individual child suffers. In the final analysis, the problem must be worked out in the home—or failing this, in the school. The most the preventorium can do is to act as an educational center and help to work out some of the more difficult technical problems.

Finally, in the absence of poverty, a completely disorganized home or total lack of family co-operation, there are very few of these children who could not be successfully handled by an understanding physician and a coöperative parent in their own home surroundings. And in the presence of these factors, unless they be solved or substituted for, the final permanent result is likely to be failure no matter how careful the preventorium supervision or how long the length of stay.

*Mr. Stanley Baldwin's Remarks on Thanksgiving Day.* Addressing the American Society of London on Thanksgiving Day, Mr. Stanley Baldwin, Prime Minister of Great Britain, said:

"It is a particularly delightful act of friendship on your part to ask an Englishman to be present tonight at your most domestic family gathering and to allow him to return thanks for the toast of the evening. It is true, as your chairman has said, that I declined his invitation. I declined it because since August I have had so many engagements, for one who dislikes speaking, that I decided to accept no more until after the general election, when possibly no one would require my services. What really decided me, and I make the confession openly to you, was the recent trouble into which my old friend has been getting. At my first attempt to get into the House of Commons I was defeated, and I know what it feels like. You may smile at the world, but you do not like it, and I thought it might be some help to him if a fellow victim held his hand tonight.

"The Ambassador said quite truly that you have much to be thankful for. He spoke of the Pilgrim Fathers. I like to think of that little colony that went out before them and spent the winter at the mouth of the Kennebec River in the early years of James I, and they came back home and said: 'This climate is one in which no Englishman can ever live.' It shows the tenacity of the race that after them the Pilgrim Fathers went and did live.

"It is a wonderful thing that about that time Hudson went sailing up the river to which he lent his name, and got as far as Albany in the sure and certain hope that he would emerge on the shores of the Pacific and find the route to India. It was a curious fact to remember, too, that just about the same time as the Pilgrim Fathers went out, King James—who I may instinctively remark, for the benefit of those who have forgotten, was a Scot and not an Englishman—thought there was gold in Virginia, and sent a colony out to find gold; and to his indignation they only found tobacco.

"But when you look at those beginnings, it is marvelous, following on through the next two centuries, to see the fortune that attended those men, their chil-

dren, and those who came out to join them. They were nearly all British stock, and their ancestors, in common with other people in Europe, had had to fight for every yard of land they ultimately lived on in whatever country of Europe their far-away ancestors had first settled. On the American Continent the descendants of those men had a clean start. The same spirit that had driven them out from England drove successively the most eager stock of each generation, till, in time, they had bridged the rivers, they had forced their way through the forests, they had struggled over the plains, and they had crossed the mountains till they did what Hudson had dreamed of, and they looked down on the Pacific.

"They had no real rivals—the French, occupied in wars in Europe, paid but little attention to the Louisiana settlement, which fell easily into the hands of the Americans. There was no great Power holding the Western gateway. There was nothing to stop them, and they found themselves, by the grace of God, in possession of a continent, rich in many parts for agriculture, full of easy means of communication by great rivers, and beyond all that were three thousand miles of ocean on either side that protected the nation in its childhood and in its youth.

"It protected them from more than hostile arms. It protected them from immigration at a time when for the nation it was all-important that they should take possession of the whole land and stamp upon it the characteristics of the people from whom they sprang. And that was done before immigration began to roll in; and mark this, as emigrants rolled in and as the Pacific Coast became settled, the engineer came into his own, and the railroad was thrown across the continent. By that means alone you prevented the possibility of a separate American nation growing up beyond the Rocky Mountains, just as the completion of the Canadian Pacific Railway kept British Columbia indissolubly linked with Canada instead of being a Pacific nation.

"You may well have your Thanksgiving Day, and I rejoice with you here today. But, of course, there are some things in which I feel my own peculiar thanksgiving, and let me remind you of this—had there been no America there would have been no tobacco. I have read some very fine and true words—the author of which shall remain anonymous—but who said that the true history of tobacco would be the history of liberty in England and America. It was tobacco that planted the English nation in America. It was the London Company that sent the settlers out, that recognized their government in Virginia, the freest government of that time on that coast. Virginia was founded on tobacco, and Virginia produced a George Washington to write on tobacco, and I may add that Virginia—Heaven bless it!—is the only country in the world which has had tobacco as its currency. There was a time when you could buy a coffin in Virginia for 100 pounds of tobacco. In 1619, before your Pilgrim Fathers, the London Company sent out a shipload of marriageable women to Virginia, and so deeply was liberty implanted in the minds of the English at that time that those women had perfectly free choice as to whom they should marry. The bridegrooms, however, had to pay 100 pounds of tobacco for the transport of the women to that country."

*Orphanage Becomes Old People's Home.*—The Jewish Children's Society of Baltimore is now taking care of its dependent, neglected, and problem children in foster homes, and its children's home at Levindale has been turned into a home for old people. This progressive agency, says the Child Welfare League of America Bulletin, invites its foster parents to meet the staff at tea and informally discuss topics of common interest. It has recently tried the experiment of having the foster mothers buy the clothing for the children in their care, a plan which during the first year resulted in a total saving of approximately \$1000.—*United States Children's Bureau, Washington, D. C.*



## California and Western Medicine

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## EDITORIALS\*

### IMPORTANCE OF PERSONNEL IN METROPOLITAN HEALTH BOARDS AND OFFICERS

*How San Francisco Recently Selected Its Health Officer.*—In the August CALIFORNIA AND WESTERN MEDICINE (pages 319 and 328) comment was made on the manner in which the city of San Francisco had seen fit to go about the task of selecting a successor to its former well-known health officer, the late William C. Hassler. In the letter which was sent to CALIFORNIA AND WESTERN MEDICINE by the secretary of the Western Branch of the Public Health Association it was stated that Mayor Angelo Rossi

"almost immediately following Doctor Hassler's death, instructed the Board of Health by memorandum that political affiliations and party lines should be laid aside in seeking a successor to Doctor Hassler. . . .

"He suggested the appointment of an advisory committee, consisting of the deans of the University of California and Stanford Medical Schools, the president of the San Francisco County Medical Society, the chairman of the San Francisco Health Council, and others, to consult with the board in the selection of the best candidate. The above advisory committee, after careful study of the functions of a municipal health department and the qualifications presented by some ten candidates, unanimously recommended Doctor Geiger."

In commenting on the appointment of Dr. Jacob C. Geiger of the Hooper Foundation of

\* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column which follows.

Medical Research, the San Francisco *Chronicle* printed the following:

"In the selection of Doctor Geiger neither politics nor influence played any part. Guarding the health of our population is too serious a problem to admit of any criterion in the selection of a health officer other than outstanding and recognized ability in this highly specialized department of medical science."

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*The San Francisco Policy Was in Harmony With Modern Public Health Viewpoints.*—Mention is again made of the above because the course pursued and the action taken in these matters, in striving to keep the San Francisco public health work and its health commissioner out of the domain of ordinary civil politics, is a policy which probably has the almost unanimous endorsement of members of the medical profession and also of all lay citizens who understand the significance and importance of public health work.

San Francisco, in proceeding as it did, acted wisely and in accordance with modern day concepts of public health standards; and for this action received the commendation of public health authorities from all parts of the United States. The example set was worthy of emulation, and one would naturally have expected that the action taken would have been taken to heart, in California at least.

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*A More Recent Vacancy in the Position of Health Officer of Los Angeles.*—The opportunity to profit by the San Francisco example soon and unexpectedly presented itself in another California city, for before the month of October came to a close a vacancy occurred in the position of health officer of California's southern metropolis, Los Angeles.

The events leading up to that vacancy will not be here discussed, because there is no wish to become involved in an exposition of the respective personal merits of the former and present health officers of the city of Los Angeles. We are here concerned with basic and important principles having to do with the organization of state and local public health departments and their relation to the medical profession. Our comments are presented with such intent.

The Los Angeles city board of health, for several years past composed entirely of laymen, saw fit, through the action of a majority of its members at its meeting on October 27, to dismiss the then health officer, and to immediately appoint his successor.

Such procedure was certainly in strong contrast to the course which had been followed in San Francisco, as above outlined.

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*Comments of a Lay Newspaper on the Method of Appointment.*—Some editorial comments in the Los Angeles *Evening Express* would seem worthy of place here, because they represent a viewpoint to which the medical profession probably gives assent. Quotation follows:

" . . . When the opportunity was afforded, by discharge of Health Officer George Parrish, to secure



for the city a nonpolitical, trained, experienced, competent man to head the vitally important Department of Public Health, the board of health instead made another political appointment.

"In the eyes of a majority of the health board members the health of the city's 1,300,000 inhabitants is second to politics. . . .

The Los Angeles County Medical Association, membership in which attests loyalty to the high principles of the medical profession, has suggested repeatedly to the health board the advantages and advisability of consulting with the United States Health Service or the Carnegie Institution, or both, before making the selection of a city health officer. These leaders in the profession have no favorite to promote. Their single interest is the public health, to place its safeguarding in competent hands. They would save this department from the bitterness of political contention which has prevailed almost uninterruptedly since the death seven years ago of the venerable Dr. L. M. Powers, whose administration of the health department for a quarter of a century gained him world-wide fame. . . ."

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*A Letter From Dr. Granville MacGowan, Ex-President of the California Medical Association.*—In the correspondence column of this number of CALIFORNIA AND WESTERN MEDICINE is printed a letter from Dr. Granville MacGowan, a former president of the California Medical Association. In that letter attention is called to other phases of the new problems which have arisen in Los Angeles. Several other letters bearing on these issues are printed in the correspondence column, including one from Surgeon General Cumming of the U. S. Public Health Service. (See page 474.)

In his letter, Dr. MacGowan very properly calls attention to the undesirability of having as the executive health board of a metropolitan city a board composed entirely of laymen.

It probably would not be unfair inference to assume that a lay health board as now existent would consist of members appointed more because of previous activities in civil politics than because of special prior interest or training in public health work.

When the present set-up of a lay board came into being several years ago, the present editor of CALIFORNIA AND WESTERN MEDICINE called attention in these columns to the fact that such a mode of organization was not in accord with modern public health organization methods, and that it would be a matter of surprise if the plan did not lead to undesirable results. (See CALIFORNIA AND WESTERN MEDICINE of August, 1927, page 225.)

The prophecy there made has been abundantly fulfilled, as shown by the manner in which such a lay board went about the dismissal of one health officer and the immediate selection of a successor.

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*What Can an "Advisory" Medical Board Do?*—It is true that the newly appointed health officer has nominated and secured the appointment by the lay board of a medical advisory committee of twelve well-known colleagues in Los Angeles, but does that really help matters to any extent? Such an advisory board, not having the executive authority—all of which is vested in the lay health

board—can at best be little more than a figurehead advisory body, with the possible additional disadvantage of "holding the sack," should serious mistakes be made by the lay executive body. A similar advisory board of twelve members, as noted in the editorial above referred to, was brought into existence in 1927 and functioned probably little or not at all.

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*A Rational Set-Up for a Health Board.*—It would seem to the editor that the city of Los Angeles owes it to itself and to its citizens that its health board should be composed of citizens who, through past training and knowledge of health and sanitation matters, would be in position to act with somewhat expert judgment, as based in turn on previous knowledge of public health work.

Such a health board might well have in its membership, say, two physicians, one veterinary surgeon, one sanitary engineer, and one business man. With such a grouping, the health officer could turn to a health board containing members who had special knowledge of epidemic diseases, of food production and distribution, of sanitary problems, and of business economics, these being the special factors worthy of coördination if best results are to be secured. It could be taken for granted that a health board of such complexion would be one which would commend itself generally to citizens, provided the mayor appointed representative and outstanding men to the different positions, which he would probably do if professional, civic, and commercial bodies did their part in informing him of the necessity of a high class personnel.

We believe it may also be taken for granted that with a board composed as above outlined, in case a vacancy had occurred in the position of health officer, that the action recently taken would have been far more apt to have been modeled after that of San Francisco, rather than that which the present lay health board of Los Angeles saw fit to adopt in its summary October meeting proceedings.

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*The Medical Profession Cannot Avoid Its Responsibilities in These Public Health Matters.*—The terms of these lay members of the Los Angeles city board of health must expire one by one. Which naturally suggests the thought as to whether it would not be a worthy cause for the Los Angeles County Medical Association to espouse and begin and carry on a campaign of education in these important matters. Then, in due time, with representatives from civic and commercial bodies of the community, the Los Angeles County Medical Association could join with such organizations to acquaint the mayor and city council with the important principle that the health board should be made up of representative citizens somewhat as above outlined.

Has not the medical profession very special responsibilities in all this? Can it or has it a right to avoid those responsibilities?

### GOOD CONSTITUTIONS AND BY-LAWS NECESSARY FOR GOOD RESULTS IN COUNTY MEDICAL SOCIETY ACTIVITIES

*Individualistic Versus Group Action in Medicine.*—The practice of medicine tends to accentuate individualistic action and outlook. Because of this tendency, physicians must constantly battle with their human instincts of gregariousness and group action. It is fortunate that the heavy responsibilities of medical practice in the care of fellow humans make physicians instinctively seek the aid of their professional colleagues in meeting their graver from day to day problems. Nevertheless, most medical men are so engrossed in the daily responsibilities to individual patients that the majority pay little or no attention to influences which affect their profession as a whole.

In days gone by, before the period of modern newspaper intellectuality and its superficial thinking—if one can be permitted to use such an expression—the profession of medicine had little to fear from the machinations of unkindly or scheming lay fellows. For in that period the physicians were part and parcel of almost the family lives of patients, receiving a loyalty and devotion that was evidenced by the laity in respectful appreciation of the profession as such, and in willingness and glad coöperation in upholding its worthy disciples.

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*Influence of Modern Day Newspaper Propaganda and of Cultist Medicine.*—As times changed came new forms of cultist medicine, and with increased force, because cultist medicine utilized modern day newspaper and other propaganda. The babel of discussion which followed brought to many lay citizens confusion in clear thinking on matters medical. This confused state of mind on the part of the lay public, of whom legislators were a part, made it possible to bring into being amendatory laws which sought to lower the standards of licensure in the healing art. When such efforts were successful, all the deleterious effects which are associated with such degradation of standards of training and practice became evident.

As time went on it was hoped by many physicians that such attacks would outwear themselves and grow less. On the contrary, they seem to have increased, as witness what takes place at every legislative session. The long lists of bills antagonistic to high standard medical practice which were introduced in this year's California legislature and as printed in CALIFORNIA AND WESTERN MEDICINE fully attest to that deplorable fact.

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*Organized Medicine Is Confronted Not With Theories But With Facts.*—In our time, in these matters, the medical profession is therefore confronted not with idealistic theories on how the profession should be treated by law makers, publicists, and lay citizens, but with the unpleasant facts of what usually takes place. How can such a situation be bettered or its tendencies guided?

Must we not agree, when calamities assail communities, that united and mass action (that is, organized effort) are nearly always brought into being in order to grapple with the situations?

Such united effort is most efficient when properly organized, because wastage is then reduced to a minimum, and results are better than can mature through haphazard, spasmodic, or overlapping methods.

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*Organized Medicine in America.*—Which leads to the inference that the medical profession, if it is to maintain its standards and do its work in most efficient and satisfactory fashion, must be an organized profession; each member of the organization doing his part in proportion to his means and talents. In America, the method of organization in medicine comprehends national, state, and county units. In California, the state organization, under its new constitution and by-laws, is working in efficient manner. In some of the county medical societies, however, there is evidence of lack of interest and of noncoördinated effort and wastage. This should not be. Members of the profession who desire to serve in organized medicine, and who find that their work ultimately leads to nothing, soon lose interest. Thus, through lack of proper interest on the part of its members, a county society may be deprived of its power to do the work needed in its community.

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*Good Constitutions and By-Laws Aid Greatly.*—Which again suggests the thought that every county society should have a constitution and by-laws as good as possible, since those instruments are the technical means by which efficient service can be best carried on, year in and year out.

Therefore, would it not be wise at this time of the year for every county society to appoint a special committee to bring in at the annual meeting a report on its constitution and by-laws; with suggestions on any changes whereby the capacity of the society for increased service might be increased? In such a survey, a study of the California Medical Association constitution and by-laws should have real suggestive value. Copies of the State Association rules may be obtained upon request to the Association Secretary.

To repeat, the way to organize is to organize. Good constitutions and by-laws aid greatly in making it easy for the new officers of each year to take up their work promptly and efficiently. Good rules of organization therefore make it possible for county medical societies to measure up to the highest and best standards.

If the medical profession of America could be organized as it should be—with an interested, militant membership, alive to all public health and professional interests—much of the specious and unwarranted criticism which is now being heaped upon the profession would not even come into being. It is not too late to effect such high type of organization and service. Good constitutions and by-laws for the county medical units will aid to that end.



## IS A NEW FIELD ABOUT TO BE OPENED IN THE SCIENCE OF BACTERIOLOGY?

In this issue of CALIFORNIA AND WESTERN MEDICINE is printed an article having as its co-authors Arthur Isaac Kendall, Ph. D., of the department of research in bacteriology in Northwestern University Medical School, and Royal Raymond Rife, Ph. D., of San Diego, California. The caption of the article is "Observations on *Bacillus Typhosus* in Its Filterable State." The article is commended to the readers of CALIFORNIA AND WESTERN MEDICINE because it is a preliminary communication calling the attention of the world to a new type of microscope, which, if it fulfills its apparent advantages over any microscopes thus far developed, bids fair to lay the basis for revolutionary discoveries in bacteriology and the allied sciences. Whereas our present microscopes magnify from one to two thousand diameters, in this new microscope we have an instrument for which a magnification as high as seventeen thousand diameters is claimed. This is certainly a long stride from the initial efforts of Van Leeuwenhoek, whose simple instrument may be said to have laid the foundation for the science of bacteriology which later came into being; and by means of which science much of the world's progress, through man's conquest of the infective and other diseases, has been made possible.

It is a source of gratification to know that the development of this new instrument which offers so much for medical research in the future took place in good part in California. The paper presented in this issue by Doctors Kendall and Rife was presented at a meeting of Los Angeles and Pasadena colleagues held at the home of Dr. Milbank Johnson of Pasadena, who induced Doctor Kendall of Northwestern to come West to make some special investigations and tests. The meeting was held on November 20, just as this December number of CALIFORNIA AND WESTERN MEDICINE was going to press. The matter seemed so important to the editor that special efforts were made to have the paper appear in this December number. It is hoped to have other communications in future issues.

## IMPORTANT CALIFORNIA SUPREME COURT DECISION IN RE: EXPERT MEDICAL TESTIMONY

In the Medico-Legal column of the Miscellany Department of this month's CALIFORNIA AND WESTERN MEDICINE is printed a report on a very important medico-legal problem. The particular legal action was carried to the Supreme Court because of the important principles involved. It was Joseph Catton, M. D., of San Francisco, who created the question at issue, through his refusal to testify on behalf of the defendant in a personal injury case. He had been called by the attorney of the plaintiff to make an examination of the plaintiff, and he contended that it would therefore be unethical for him to testify at the request of the defendants; and, further, that the defendants, not having made arrangements to

financially compensate for testimony as an expert, he was therefore not obligated in law to give such testimony. (Report is printed in this issue of CALIFORNIA AND WESTERN MEDICINE, p. 472.)

The matters at issue were called to the attention of the Council of the California Medical Association, the Council then instructing the legal counsel, Mr. Hartley Peart, to enter into the case as a "friend of the court," in order that certain important professional interests of a legal nature could be called to the attention of the Supreme Court of California, to which court the case had been carried on appeal.

It is hoped that many of the readers of this journal will give themselves the pleasure and benefit of perusal of the report referred to.

It is gratifying to know that certain principles important to the medical profession were established through this decision of the Supreme Court of California. The fact is that many persons are prone to demand almost everything from members of the medical profession, in strong contrast to the manner in which real and personal property are hedged with legal safeguards. Here again is exemplified the need of constant vigilance and willingness to meet important issues as they arise. The Council of the California Medical Association and Mr. Peart, as legal counsel of the State Association, for their prompt and efficient action have the appreciation of members of the California Medical Association.

## COMMENT ON THIS AND THAT

*Cyanide Fumigation—Two Deaths Therefrom in Los Angeles.*—When California's sister state—Nevada—in lieu of the gallows or the electric chair installed its lethal chamber in which cyanide gas was used as the means of exit from earth for those of its citizens who had been condemned to death, that present day departure from procedures elsewhere established, was greeted with much newspaper comment and discussion. Even yet each such lethal chamber execution receives more than ordinary space in the daily press.

The efficacy of the cyanide method in producing almost instantaneous death is not gainsaid; but to have two young men in Los Angeles die by practically the same method, in a hotel in which one room was presumably infested with vermin (bedbugs), because the official fumigating firm did not completely close a steam pipe aperture leading to the room above, would seem an altogether too heavy a price to pay for so-called more effective modern-day methods of vermin destruction. The city of Los Angeles, and its public health department in particular, have a heavy task in explaining to the bereaved relatives and friends of the two young men whose lives were unceremoniously snuffed out, why such a method of vermin destruction, dangerous even though efficient—unless combined with adequate and meticulous supervision—should have been used.

These two unnecessary deaths naturally caused a furor in the lay press, and rightly so. If the

two young men during life had occupied high social or civic stations, the press notices and criticisms would no doubt have been doubled or trebled, and it would have been demanded of the civic authorities that immediate action be taken to prevent a repetition of such an occurrence. To the mother and relatives and friends of these young men, who thus lost their lives on November 16, the tragedy, however, is just the same and just as heartbreaking as if they had been civic leaders in the community.

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In this connection the question may be fairly put: "What expert knowledge and judgment will now be brought to bear on this case by the five lay citizens who, through appointment by the mayor of the city, constitute the health board of Los Angeles, and who in that capacity have the final say on public health activities in that city of more than one million persons?"

In the last analysis, must not the health board bear its goodly share of responsibility in what took place? For it is the health board which must not only supervise the administration of public health laws but which must take a leading part in bringing into being additions or changes in present health and sanitation laws, when such do not adequately protect human life.

In a function so important to the welfare and lives of citizens, should not such a health board be composed of citizens having that special knowledge and experience which could be of great value in the solution of public health problems?

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*Rabies Aboard Ship.*—Several months ago, CALIFORNIA AND WESTERN MEDICINE gave considerable space to a discussion of the rabies situation in Southern California. (See CALIFORNIA AND WESTERN MEDICINE, July, 1931, page 39.)

Dispatches of the Associated Press of November 17 told the story of a group of sailors who had been bitten by a dog smuggled aboard the United States destroyer *John D. Edwards* on October 15, when the ship was at Chefoo, China.

Arthur Brisbane, in his column in the *Examiner*, made the following pertinent comment on the incident:

"A small dog, smuggled aboard a destroyer in harbor by sailors that desired a playmate, bit ten of the seamen. What happened will interest those that say talk of rabies is all nonsense; also those that think disease is not real.

"The ten bitten concealed the fact. Three died of rabies, the other seven are in the hospital, undergoing treatment."

What took place was certainly a tragedy to the unsuspecting victims who, through disobedience of an order against dogs, brought the supposedly healthy dog aboard ship. A lesson also, as Brisbane indicates, to lay citizens who, from theoretical premises sufficient unto themselves, contend that the disease known as rabies exists only in the minds of members of the medical profession.

*A Newspaper "Sob Story"—Medical Attention Difficult to Secure.*—About November 18, Los Angeles newspapers printed a pathetic story of a penniless father and family resident in the outskirts of Los Angeles whose infant child of twenty months became ill and died at the end of two or three days. The infant was one of six children; the father was out of work and without means. This setting, with the fact that one or more doctors supposedly had been telephoned to before answering the call, and that the physician who did attend the child left a prescription which had been filled by a druggist on the promise of the man to pay for the same at some future time were sufficient elements for special "sob stories" in the lay press. Photographs of the family and of the bottle of medicine made absorption of the feature writers' stories the more appealing. The stories were no doubt read with avidity by many citizens, and therefore could be interpreted as having good news value.

That what took place was unfortunate cannot be denied. But the impression as given in the newspaper accounts, of cold-hearted physicians, was hardly warranted. In consideration of an instance such as this, society at large, and particularly lay citizens of means, may well ask themselves, if at the end of each year, they think they can give as commendable records of themselves as can the multitude of physicians, who in their offices and hospitals are constantly giving gratuitous service to their fellow men who come for free medical service when buffeted by the complex of disease or injury, with poverty.

That the happenings in the family group above cited are worthy of investigation and thought there can be no question. That the solution of such a problem should be found in better organized charity, maintained by the joint efforts of all citizens rather than through the gratuitous service of members of one profession would also seem to be a fair inference. That the lay press would probably be able to do a great service to the public by enlisting the aid of constituted public and private charities in this instance to ameliorate the poverty complex of which the infant's illness was only a part, would also seem reasonable.

This particular newspaper story is here discussed because it must seem difficult for many physicians to understand hasty criticisms of their profession, when year after year they have seen themselves and their fellow physicians give without stint, the most generous and efficient type of professional service to the poor.

It is hard to properly evaluate criticism that is based on an exceptional case of presumable tardiness in charitable action by a physician or physicians; and to explain why so much more publicity and display for such an instance should be given in the lay press than comes in the shape of kind words or other recognition throughout an entire year, to the hundreds of physicians and surgeons who are constantly giving of themselves and their professional services in most altruistic fashion to the lay public. Consistency in thought and judgment, at times certainly seems to be a somewhat rare attribute of many human beings.



## MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

**Muscular Pain and Its Treatment.**—Pain as a symptom cannot but interest all physicians. One of the most frequent painful conditions is the so-called “muscular rheumatism” (“fibrositis”) whose etiology is obscure, its differential diagnosis often difficult, and its course long, distressing and incapacitating.

Hence, any possible addition to our diagnostic and therapeutic resources in this disease merits serious consideration.

Max Lange, of the Munich Orthopedic Clinic, in a recent publication\* presents clinical and experimental evidence to show that much of the pain in muscular rheumatism, sciatica, and lumbago, as well as in sprains and joint injuries, is due to the formation in the muscles of palpable swellings which are intensely sensitive and are usually accompanied by muscular spasm, which is protective in function.

These swellings, though not of the consistence of dense fibrous tissue, can be mapped out by their sense of resistance. They are to be distinguished from the nodules following definite myositis or fibrositis with which we have been long familiar, since in the former, histological examination shows no abnormalities while in the latter there are definite inflammatory changes.

Schade and Fritz Lange consider that they are due to changes in the colloid material of the muscle, which undergoes a “gelatinization” probably allied to what occurs in rigor mortis. This change seems to be favored by exposure to cold, by overuse and strains, as also by intoxications and infections, and by disturbances in metabolism and internal secretion, though what these latter are is unknown; and as to the ultimate cause of rheumatism we are quite at sea. For the swellings described, these authors propose the name of “muscle hardenings” or “myogeloses.” These hardenings do not disappear under anesthesia and, therefore, are not spasms of muscle fibers, but their absorption can be procured through deep massage in which sometimes considerable force may be necessary. If the areas are large their dissipation produces in the overlying skin, discolorations like those of a subcutaneous hemorrhage undergoing absorption, which indicate that the manipulation has been successful. These areas vary in size from that of a lentil to cylindrical swellings as thick as one's little finger and tend to occur particularly along the edges of the muscles, especially in those of the shoulder and pelvic girdles and in the back and limb muscles. For their detection by palpation, considerable skill and

experience are necessary, but not more than can be acquired by any physician.

Lange gives diagrams showing the most prominent seats of the “myogeloses” and describes his methods of palpation and of massage or “gelotripsy,” which consists of deep kneading movements and stroking toward the fleshy portion of the muscle, where the disintegrated products are most readily absorbed. In fresh cases of muscular rheumatism this may lead to speedy relief of pain, but even those of years' standing can be aided, though the manipulation will take considerable time. However, in every case an effort must be made to discover and remove the underlying cause of the disease, otherwise the myogeloses will recur. How difficult is this latter task we know only too well.

Lange has been working chiefly from the standpoint of the orthopedist and finds the methods described an immense improvement in the treatment of the various professional spasms, strains, injuries of muscles, arthritides, and in the after-treatment of fractures where pain and stiffness are the chief obstacles to the return of function. In all these instances he finds myogeloses present and susceptible to removal, with the happiest results. While he relies in practice upon his “gelotripsy,” he presents some experimental results to show that the injection into the affected muscles of small doses (one-half to two cubic centimeters) of a one-half to one per cent solution of sodium phosphate may aid in the absorption of the myogeloses.

Location of the myogeloses and their differentiation from tumors, varicose veins, etc., must precede all manipulation. Sciatic and other neuritis must be eliminated, as “gelotripsy” can only harm these. Lange is very explicit as to diagnosis preceding treatment and describes at length how to make it.

CHARLES LEWIS ALLEN, Los Angeles.

**A New Meningococcus.**—That nearly ten per cent of the meningitis cases in America are due to a micro-organism “not represented in any of the therapeutic polyvalent serums now manufactured” is indicated by a recent contribution from the Hygienic Laboratory of the United States Public Health Service, Washington, D. C.† This new micro-organism (*Neisseria flavescens*) is morphologically indistinguishable from previously known meningococci, but is readily differentiated by its cultural characteristics, particularly

\*Lange, Max: Die Muskelhärten (Myogelosen), (Lehmann, München, 1931).

† Branham, S. E.: A New Meningococcus-Like Organism (*Neisseria flavescens* n. sp.) from Epidemic Meningitis, Reprint N. 1968, Pub. Health Rep., 45:845, No. 16 (April 18), 1930.



by its pigment production and failure to ferment certain sugars. Serologically, however, the new micro-organism is wholly unrelated to previously known meningococci, since it is not agglutinated by any of the older type antisera. Thirty per cent of the spinal fluids received from one locality contained this new coccus, whose pathogenicity is indicated by the fact that the mortality in these selected cases was at least 30 per cent.

W. H. MANWARING, Stanford University.

**Ligation of Pulmonary Vessels in Pulmonary Tuberculosis.**—In 1923 Schlaepfer<sup>1</sup> advocated a combination of phrenicotomy and ligation of the lower branches of the pulmonary artery for pulmonary tuberculosis in man, upon the basis of animal experimentation. He had found that ligation of the pulmonary artery was followed by a dense fibrosis of the lung with shrinkage. The purpose of phrenicotomy was to compensate for shrinkage of the lung by the rise of the diaphragm. He also proposed partially occluding the pulmonary veins with Halsted bands which should be removed later. However, he considered this latter procedure as only of academic interest in the state of thoracic surgery at that time. Lately there have been some reports on human patients, of the therapeutic effect of ligation of pulmonary veins in cavernous tuberculosis, by Edel<sup>2</sup> and Kerschner.<sup>3</sup> In four patients in whom other forms of collapse therapy (pneumothorax and phrenicotomy) had failed, ligation of the pulmonary veins was resorted to. The intervention has a favorable influence on the foci of infection as well as on the cavities. The operation is performed under a general anesthetic. An incision, 10 centimeters in length, is made along the upper border of the third rib, which is temporarily resected. By blunt dissection the hilus of the lung is approached and the branches of the pulmonary vein identified. The ligation is done with strong silk thread, which is never knotted tightly, so as to avoid cutting into the vein. Pulmonary edema which had been observed in animals does not develop because there is never a complete ligation of all the branches of the pulmonary vein. The object of the operation is not a complete obstruction of venous drainage of the lung, but a prolonged stasis in its most severely affected portions.

The operation is not intended as a substitute for thoracoplasty but rather as an alternative which is of special use in those patients having rigid cavities. These seem to be helped more by ligation than by thoracoplasty. In fact thoraco-

plasty has its greatest number of poor results in just these patients. The above clinical work is of interest in that it gives the thoracic surgeon a new weapon in the methods available for the surgical treatment of pulmonary tuberculosis.

A. LINCOLN BROWN,  
San Francisco.

*Prophylaxis of Ringworm of Feet.*—Earl D. Osborne and Blanche S. Hitchcock, Buffalo (*Journal of the American Medical Association*, August 15, 1931), report a method for the prophylaxis of ringworm of the feet which has proved satisfactory as judged by fungicidal tests in the laboratory and from practical experience in the high schools of the city of Buffalo and in many other public and industrial institutions. About a year ago it was suggested to one of them that it might be worth while to test out the fungicidal activity of sodium hypochlorite, the common, cheap and harmless bactericide used in most city water supplies. They at once tested out the fungicidal activity of this chemical to five common types of fungi found on the feet of persons suffering from ringworm. From these tests it was evident that a solution of 0.5 per cent sodium hypochlorite should kill all the common fungi found in ringworm of the feet with exposure of fifteen seconds to these organisms in a watery suspension. Fresh moist deposits of ringworm organisms on the feet should, therefore, be killed with 0.5 per cent sodium hypochlorite, provided the organisms have not penetrated to the deeper cells in the horny layer of the epidermis. With the experimental data at hand, the T. A. Patterson Laboratories supplied the Buffalo high schools, at cost, with sufficient rubber pans and sodium hypochlorite solution to carry out this method of prophylaxis for a period of one year. The company had a special rubber pan prepared whose inside measurements were two feet on a side. These pans were made of heavy rubber and weighed approximately sixty pounds. One pan was placed on the floor of the corridor between the dressing rooms and the shower baths, and another pan was placed at a point past which all the pupils had to pass just before putting on their clothes. The pans were filled up to the two-inch mark with 0.5 per cent sodium hypochlorite solution and this solution was changed every morning. Although the solution was never diminished to such an extent that a refill was necessary, it was evident that a large number of persons stepping in and out of the pan on the way to the shower bath might gradually deplete the solution. A slight, but not appreciable, dilution of the chemical occurred. In order to allow for this dilution and for a margin of error, the authors have recently recommended the use of one per cent sodium hypochlorite instead of 0.5 per cent solution. Up to May 2, 1931, this method of prophylaxis has been employed in the Buffalo high schools for a period of from nine to twelve months. The physical directors of each school have been carefully advised regarding the method and the checking of results. All the complaints have been transmitted to the director of physical education of the Buffalo public schools. He stated that in former years a great many complaints were received and that many new cases of ringworm of the feet appeared each year among high school students. The director of physical education of the public schools of Buffalo reported that this year he had not received a single complaint from parents or pupils because of the appearance of ringworm of the feet. The various directors of the different schools have been well informed on the disease and have been unusually alert in the detection of new cases. None were reported for the entire year. In private practice the authors have noticed a drop in the incidence of new cases of ringworm of the feet in high school pupils of the city of Buffalo. Their records fail to show a single new case, although numerous ones have appeared from the surrounding towns.—*Nebraska Medical Journal*, October 1931.

<sup>1</sup> Schlaepfer, Karl: (a) Fibrosis of the Lung Following Ligation of the Pulmonary Artery Combined With Phrenicotomy and With Partial Occlusion of the Pulmonary Veins. *Arch. Surg.*, 6:558, 1923. (b) Ligation of the Pulmonary Artery of One Lung With and Without Resection of the Phrenic Nerve—Experimental Study. *Arch. Surg.*, 9:25, 1924. (c) Ligation of the Pulmonary Artery Combined With Resection of the Phrenic Nerve in Chronic Inflammatory Conditions, Especially Tuberculosis of One Lung. *Am. Rev. Tuberc.*, 10:35, 1924-1925.

<sup>2</sup> Edel, H.: Ligation of Pulmonary Veins in Cavernous Pulmonary Tuberculosis. *Zeitschrift für Tuberkulose*, Leipzig, 60:177-256 (April), 1931.

<sup>3</sup> Kerschner, F.: Ligation of Pulmonary Veins in Pulmonary Tuberculosis. *Zeitschrift für Tuberkulose* Leipzig, 60:177-256 (April), 1931.



# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION\*

JUNIUS B. HARRIS.....President  
JOSEPH M. KING.....President-Elect  
EMMA W. POPE.....Secretary

### OFFICIAL NOTICE

**Next Council Meeting.**—The date of the January meeting of the Council has been set for January 16. The meeting will be held in the offices of the Association, 2004 Four Fifty Sutter Street, San Francisco.

### COMPONENT COUNTY SOCIETIES

#### CONTRA COSTA COUNTY

The annual business meeting of the Contra Costa County Medical Society was held in Richmond on November 10, with President Dr. W. A. Rowell in the chair. The following applications for membership were approved.

Dr. H. E. Peters of Pittsburg, Dr. Kaho Daily of Richmond on a transfer from San Francisco County Medical Society, and Dr. R. C. Leggo of Crockett on transfer from Solano County Medical Society.

The society unanimously passed a resolution recommending to the Board of Supervisors that hospitals and physicians treating emergency cases which later proved to be county charges should be compensated by the county for their services. On motion by Dr. U. S. Abbott this resolution was amended to recognize the industrial fee schedule in determining the proper fee in these cases. Copies of this resolution were ordered forwarded to each of the supervisors and the committee was instructed to attend the next meeting of the board to urge its acceptance.

In memory of our deceased member, Dr. P. C. Campbell of Richmond, who passed away on October 16, 1931, the secretary read the obituary written by Dr. C. R. Blake. The annual report of the secretary was read and approved. The question of dividing the membership of the society into two branches was brought up for discussion. It was decided to leave the initiative in this matter to the interested members and the proposition was tabled until the next meeting for lack of proper sponsorship. The Veterans' Insurance plan offered by Doctor Brothers of Texas in a recent issue of the American Medical Association bulletin was explained by the secretary. Doctors Beard, Beede, Bumgarner, Wise, Gregory, Neufeld, Todd, Nevius, Weil, and Fraser were appointed to contact the veterans' organizations in their respective localities. Before instituting any definite campaign of education among veterans' organizations, it was deemed advisable to ascertain from the State Association and the American Medical Association whether they have endorsed any definite plan or approved any official policy on this question. This information is to be obtained by the secretary and submitted at the next meeting. Dr. C. O. Bishop was appointed chairman of the committee to arrange for the annual banquet to be held on December 5. Doctors Stauffer, Church, Beede, and Leggo were named to assist him. The sentiment of the majority in attendance favored Richmond as the place of choice for this affair.

The following officers were elected for the year 1932: S. N. Weil, president; J. L. Beard of Martinez, vice-president; Clara Spalding of Richmond, secre-

\* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

tary. A. H. Beede of Walnut Creek was elected censor for three years, and C. O. Bishop of Richmond for two years to complete the unexpired term of Dr. P. C. Campbell, deceased. I. O. Church was chosen as an alternate delegate to complete the unexpired term of J. F. Feldman, who has moved to another part of the state.

A joint buffet supper with the Woman's Auxiliary was enjoyed after the meeting.

L. H. FRASER, *Secretary*.

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#### NAPA COUNTY

The regular monthly meeting of the Napa County Medical Society was held at Marino's Grill, Napa, on October 14, the business meeting being preceded by a dinner.

The meeting was called to order by President R. S. Northrop.

Members present were: H. V. Baker, M. M. Booth, G. I. Dawson, C. A. Gregory, C. A. Johnson, D. H. Murray, C. E. Nelson, R. S. Northrop.

Dr. R. S. Rood, Napa State Hospital, attended as a visitor.

During the month two members of the Napa County Society were taken by death: Dr. Herbert R. Coleman of Napa and Dr. Edward F. Donnelly of the Napa State Hospital staff. It was moved, seconded, and carried that suitable resolutions of sympathy be drawn and copies sent to Mrs. Coleman and to Mrs. Donnelly.

It was agreed that poliomyelitis convalescent serum should be secured from the Hooper Foundation for Medical Research in San Francisco and that the same should be kept at the Victory Hospital, Napa, that it might at all times be available to members of the Napa County Medical Society.

Informal discussion of problems such as state medicine and medical education through proper publicity in the local press occupied the remainder of the meeting.

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The regular monthly meeting of the Napa County Medical Society was held Wednesday, November 4, at the Veterans' Home, Napa County. Through the courtesy of Colonel Holderman, Commandant of the Home, and the board of directors, an excellent dinner preceded the business meeting.

The meeting was called to order by Dr. Robert Northrop, president, and the minutes of the previous meeting read and approved.

Members present were: M. M. Booth, W. L. Blodgett, G. I. Dawson, C. A. Gregory, C. A. Johnson, A. K. McGrath, A. H. McLeish, D. H. Murray, C. E. Nelson, R. S. Northrop, R. E. Poole, L. Welti, and G. J. Wood.

Visitors who attended the meeting were: E. E. Bull and A. R. Kilgore, San Francisco; Doctor Bryan, Mare Island; S. S. Bogel and W. C. Shipley, Santa Rosa; F. L. Fuller Veterans' Home; B. M. Johnson, R. S. Rood, T. H. Stice, and Doctor Shumate, Intern, Imola; H. Rogers, Petaluma; T. Russel, Napa.

Dr. J. M. Scandland of the Napa State Hospital was unanimously elected to membership by transfer from the San Francisco County Medical Society.

The following officers were then elected for the year of 1932: C. H. Bulson of Napa, president; C. A. Johnson of Napa, vice-president; and M. M. Booth of St. Helena, secretary-treasurer.

Dr. A. R. Kilgore of San Francisco spoke briefly about the work of the Cancer Commission of the California State Medical Association.

The speaker of the evening, Dr. Edward C. Bull of San Francisco, presented a masterly discussion of "Fractures" and displayed x-ray films to illustrate many interesting cases.

C. A. JOHNSON, *Secretary*.

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#### SAN BERNARDINO COUNTY

The regular meeting of the San Bernardino County Medical Society was held on November 3 at the County Hospital.

The following men were accepted into the society by vote: Doctors R. Barkema, T. J. Rankin, E. B. Godfrey, D. Brumbaugh, H. Garcelon, and C. A. Love.

The program of the evening was then entered upon as follows:

"Treatment of Undescended Testicle" (illustrated by lantern slides)—Dr. E. J. Eytinge Redlands.

"Oblique Inguinal Hernias" (motion picture demonstration)—Dr. C. Lewis Gaulden, Los Angeles.

Discussion was held on these papers jointly and was opened by Dr. Philip Savage of San Bernardino.

The meeting adjourned at 9:30 o'clock for refreshments after the speaker of the evening had been extended thanks by the president.

E. J. EYTINGE, *Secretary*.

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#### SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at 8:30 o'clock on October 1 in the Medico-Dental club rooms at 242 North Sutter Street, Stockton.

The meeting was called to order by President George H. Sanderson.

A motion was made by Dr. J. E. Barnes, seconded by Dr. J. D. Dameron, that in the future all papers on the program of an advertising or nonmedical character be read after the scientific program. The motion was carried.

In the matter of a talkie-movie film offered by a pharmaceutical house, Dr. J. D. Dameron moved that our programs be confined to scientific papers. This motion was duly seconded and carried.

The first paper on the scientific program was a report by Dr. F. B. Sheldon on "Impressions of Eastern Cancer Clinics," following his recent visit to the Atlantic Coast.

Doctor Sheldon visited the Huntington Cancer Clinic at Boston; Hanville Clinic, twenty-two miles from Boston; and the New York Memorial. The Hanville Clinic, with 120 beds, is the largest of its kind in the world. It is planned to add fifty more beds since they now have a waiting list of patients.

Doctor Sheldon stated that preoperative irradiation makes operation more difficult because of the blood engorgement of the tissues which persists for two or three weeks. Postoperative irradiation is being discontinued also.

In the inoperable cases the use of radium and of x-ray is useful in relieving symptoms, especially pain. At the New York Memorial they have nine grams of radium, the largest amount held by any institution in the world. Four grams of this is enclosed in a lead bomb with a window, and is used for direct exposures four to six inches from the skin.

Dr. Robert R. Newell of San Francisco read a paper on "Use of the X-ray in Treatment of Malignant Diseases." Doctor Newell first called attention to cancer as a terrible scourge, presenting the greatest problem of modern scientific medicine. Present therapy is not rational because it is not based on knowledge of the etiology of cancer. Some early cases yield readily to surgery; others do as well under x-ray and radium treatment. Which to use should be decided only after a serious consultation of surgeon and radiologist.

The greatest field of usefulness for x-ray and radium is in the field of palliation. Some types of malignancy are highly resistant and should not be given the roentgen treatment—such as carcinoma of the stomach, advanced carcinoma of the face, some brain tumors, and carcinoma of the prostate. All

others should have full dosage and the patient's comfort will be greatly aided.

Radiation is not the solution of the cancer problem, but it is an invaluable means for relief.

There being no further business the meeting was adjourned and refreshments served.

C. A. BROADBUSH, *Secretary*.

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#### SANTA BARBARA COUNTY

By invitation of the members in the northern end of the county, the Santa Barbara County Medical Society held its regular meeting in Santa Maria on November 9 at the Santa Maria Club. A dinner of barbecued steak was served to forty-seven members and visitors.

Dr. H. J. Ullmann, president of the society, opened the meeting and turned it over to Vice-president O. C. Jones.

The program of the Southern California Medical Association for November 13 and 14 was read.

A letter from Mr. H. A. Lofy offering to open a physicians' exchange in Santa Barbara was read. When put to vote there was no support and the secretary was instructed to so notify Mr. Lofy, stating that the society was not opposed to it if any wished to subscribe.

Dr. W. Ray Jones of Seattle was introduced, and with many lantern slides gave a very interesting paper on "John Doe's Gonorrhea." The paper was discussed by Doctors Johnson, Gillihan, and Conser.

Dr. C. G. Toland of Los Angeles then gave a fine paper on "Thyroid," touching on its many phases, with lantern slides of patients, tables of two hundred recent cases, and diagnosis and treatment. It was in his usual fine and comprehensive style and was much enjoyed. Discussion was by Doctors Sansum, Shelton, and Dunkley of San Luis Obispo.

P. C. MEANS, *Secretary Pro Tem*.

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#### STANISLAUS COUNTY

The regular meeting of the Stanislaus County Medical Society was held at the Hotel Hughson on November 13.

Dr. F. R. DeLappe gave a short talk on "Council Proceedings."

A vote of thanks was extended Dr. J. A. Collins for his work as president of the County Association for the past year.

The regular annual election of officers was next held. The office of president was filled by Dr. E. F. Hagedorn, Modesto; of vice-president by Dr. J. A. Porter, Modesto; of secretary-treasurer by Dr. Donald L. Robertson, Modesto; as censor, Dr. E. G. Allen of Patterson.

DONALD L. ROBERTSON, *Secretary-Treasurer*.

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#### VENTURA COUNTY\*

The regular monthly meeting of the Ventura County Medical Society was held on October 13 at the Ventura County Clinic building.

The meeting was called to order by Doctor Achenbach.

Those present were: Doctors Little, Welch, Achenbach, R. M. Jones, Hendricks, Fellerbaum, Bardill, Illick, Homer, Armitstead. Visitors: Doctors Foskett, Clark of Santa Barbara, and Drace of Ojai.

Doctor Strong's application was read, the motion for acceptance being made by Doctor Hendricks and seconded by Doctor Bianchi. The motion was voted on and carried.

The committee on by-laws was appointed as follows: Dr. Hendricks (chairman), Bardill, and Bianchi. A request was made to write Doctor Pope for

\* **Erratum Notice.**—Dr. Harold Walgrove Wright, late president of the Ventura County Medical Association, was born on May 11, 1883 and died at Ojai, July 12, 1931. Doctor Wright, therefore, was 48 years of age, not 78 years.



a copy of the latest by-laws of the State Medical Association. This concluded the business session.

The scientific program was presented by Doctor Ullmann of Santa Barbara, who gave an illustrated lecture on cancer and treatment.

R. B. ARMITSTEAD, *Secretary*.

## CHANGES IN MEMBERSHIP

### New Members

*Alameda County*—Alice M. Burke, Harris Davis Loe.

*Humboldt County*—Clarence Crane, Lowell Kramar.

*Los Angeles County*—Royall H. Bandelier, James DeWitt George, H. Henry Greenway, Morton Myron Mayers, Waldo Cooper Pendleton, Harry James Powers, Ethelred Fisher Robinson, Elizabeth Adrienne Sirmay, Leonard R. Thompson.

*San Bernardino County*—Charles Leslie Dale, Donald H. Brumbaugh, H. Garcelon, Philip W. Lawler.

*San Diego County*—Thomas S. Whitelock, Jr.

*San Francisco County*—Felix Cunha, Margaret A. Eakin, Lee James Hand, Albert Paul Krueger, John J. McGuire, Douglas G. Macpherson.

*Santa Barbara County*—Daniel Maurice Clark.

*Santa Clara County*—Donald Richard Threlfall.

### Resignations

Charles N. Gruesel, from San Bernardino County.

### Transfers

Thomas C. Austin, from Los Angeles to Kern County.

Giuseppe Vercellini, from Los Angeles to Fresno County.

### Deaths

**Briggs, William Ellery.** Died at Sacramento, November 6, 1931, age 78 years. Graduate of Cleveland College of Physicians and Surgeons, Ohio, 1877. Licensed in California, 1879. Doctor Briggs was a member of the Sacramento Society for Medical Improvement, the California Medical Association, and a Fellow of the American Medical Association.

**Dawson, William Calhoun.** Died at San Francisco, November 14, 1931, age 52 years. Graduate of the University of California Medical School, San Francisco, 1907. Licensed in California, 1907. Doctor Dawson was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Mead, Francis H.** Died at San Diego, November 15, 1931, age 68 years. Graduate of the University of Durham College of Medicine, Newcastle-upon-Tyne, 1885; the Royal College of Physicians, London; and the Royal College of Surgeons, England, 1885. Licensed in California, 1893. Doctor Mead was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Smith, Walter Albert.** Died at Modesto, October 19, 1931, age 54 years. Graduate of Keokuk Medical College of Physicians and Surgeons, Iowa, 1908. Licensed in California, 1920. Doctor Smith was a member of the Stanislaus County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Stigall, Clarence Golden.** Died at San Diego, September 17, 1931, age 45 years. Graduate of University of Louisville School of Medicine, Kentucky, 1907. Licensed in California, 1919. Doctor Stigall was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Strader, Harvey W.** Died at Sacramento, November 11, 1931, age 72 years. Graduate of the College of Physicians and Surgeons of Baltimore, Maryland, 1885. Licensed in California, 1892. Doctor Strader was a retired member of the Sacramento Society for Medical Improvement, the California Medical Association, and the American Medical Association.

**White, Carlos Moulton.** Died at Visalia, November 6, 1931, age 56 years. Graduate of Rush Medical College, Chicago, 1901. Licensed in California, 1901. Doctor White was a member of the Tulare County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

## CALIFORNIA MEDICAL ASSOCIATION CANCER COMMISSION

To be told that one has cancer does not necessarily mean a death sentence. The percentage of actual cures among the commoner forms of cancer is being increased every year as physicians become more and more skilled in the use of established and proven methods, and as improvements in the technical methods of surgery and especially radium and x-ray are developed. Each year shows a steady and, in some instances, rapid increase in the percentage of cures within definite groups of cancers, and such orderly development in the treatment and cure of this dread disease should proceed faster and faster as knowledge and experience increase. The development of new methods of using radium, for example, with accompanying improvements in results, is occurring so rapidly that it is difficult for anyone not devoting a large part of his time and interest to the work to keep up with the rapid changes. Today with radium dosage multiplied ten to twenty times but with caustic radiation screened out by heavy filtration, it is possible to achieve results with certain cancers far in advance of the possibilities of even five years ago.

Man has looked for panaceas from the beginning of time; in the Middle Ages, for the fabulous philosopher's stone that would cure every ill—in more recent times for a specific remedy for a specific disease, and has discovered quinin for malaria, antitoxin for diphtheria, serum for epidemic meningitis, insulin for diabetes.

Man is still seeking such a specific for cancer—an amulet hung around the neck, a "radio-active" water, a miracle-working paste, or a marvelous substance to be injected into the body.

For reasons that are only too painfully obvious to the student of cancer, it is extremely unlikely that any specific cure for cancer will ever be found, as cancer is not a single disease but a whole group of diseases with certain common characteristics. Expending money upon research which holds so little hope of success seems questionable judgment. But this does not apply to the development and perfection by clinical and laboratory research of methods which have yielded a measure of success when intelligently and skillfully applied.

The California Medical Association Cancer Commission conceives its objective as including the encouragement of research of this type in California—advancing the technique of known methods of cancer therapy.

It is becoming trite to state, yet it cannot be repeated too often, that early diagnosis and early treatment do result in cures. We must cut down: (1) the time between first symptoms and first examination by a doctor; (2) the time between first examination by a doctor and institution of correct treatment.

The broad objective of the California Medical Association in the cancer field includes, therefore, encouragement of clinical research, public education and the advance of skill and knowledge in the medical profession of California.

We are convinced that those who go into a fight believing that fight hopeless are doomed to defeat. We hold a spirit of optimism and firm belief in ultimate success even in the face of previous discouragements. Civilization once considered the plagues, leprosy and smallpox, hopeless. Today science has almost eradicated them and their terror has disappeared. So, even though our very lives are challenged, we meet the enemy with courage and the conviction of ultimate success, for, although the number of cancer cases is increasing, the percentage of cures is increasing also.

HENRY J. ULLMANN, M. D.



## THE WOMAN'S AUXILIARY TO THE CALIFORNIA MEDICAL ASSOCIATION\*

### Component Auxiliary Meetings

*Sacramento County Auxiliary* reports an interesting meeting in October at Del Paso Country Club.

Mrs. A. M. Henderson, president, was hostess at a beautifully appointed dinner, which preceded the meeting. The tables were decorated with fall foliage and chrysanthemums.

Mrs. W. H. Sargent, state president, was the guest of honor and the speaker of the evening.

The following musical program was given: Vocal solos by Mrs. Harry Kanner and Madame George Iki, with Mrs. Eugene Pitts at the piano. Violin solos by Mrs. Ernest Myers of Roseville.

Mrs. Frederick Scatena entertained as her guest, Mrs. S. W. Weil of Rodeo, second vice-president of the state organization. Mrs. Ernest Meyers of Roseville was the guest of Mrs. E. S. Babcock. Mrs. A. A. Alexander of Piedmont, recording secretary of the state organization, was also an out-of-town guest. The Courtesy Committee, which assisted the president, Mrs. Henderson, consists of the following members: Mrs. F. P. Brendel, Mrs. T. W. Kelsey, and Mrs. R. G. Pearson.

*Alameda County Auxiliary* held its regular meeting on the second Friday of November at the Oakland Club House on Montecito Avenue.

Mrs. G. G. Reinle, retiring president, reported a splendid growth of the auxiliary since it started two years ago, having now a membership of 210.

Mrs. Robert S. Leet, secretary-treasurer, reported the auxiliary in good financial condition. Mrs. A. A. Alexander, state recording secretary, read interesting excerpts from an address by Doctor Kinney at the June convention in San Francisco in which he gave excellent advice on the work to be done by auxiliaries and ending with this important thought for the year's work: "The doctor's wife must know the facts."

Mrs. W. H. Sargent, state president, gave an inspirational talk on the work accomplished in many different auxiliaries throughout the nation.

Mrs. Hayward G. Thomas gave two delightful solos on the piano.

The election of officers took place, followed by installation. The new president, Mrs. Thomas J. Clark, gave a witty, informal talk on her work in taking up the gavel as the new leader.

A vote of thanks was given to Mrs. Reinle and Mrs. Leet for having so successfully tended the infant auxiliary through the first two years of its existence.

The meeting closed with a reception and tea to the following new members: Mrs. Thomas J. Clark, president; Mrs. Charles A. Dukes, president-elect; Mrs. George Rothganger, vice-president; Mrs. Sidney K. Smith, recording secretary; Mrs. Douglas E. Stafford, corresponding secretary; Mrs. Alvin Powell, treasurer. Members of Council: Mesdames Chesley Bush, C. H. Miller, R. J. Nutting, Clarence W. Page, W. H. Streitmann, and H. G. Thomas.

### National Auxiliary News

We regret to announce that Mrs. Walter Jackson Freeman, our national president-elect, is yet detained in Europe by the illness of her son. His convalescence is slow though apparently definite. Mrs. Freeman's return is uncertain though hoped for before the end of the year.

\* As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of their officers should be forwarded to Mrs. Louis H. Dyke, Chairman of Publicity and Publications Committee. Brief reports of county auxiliary meetings will be welcomed by Mrs. Dyke and must be sent to her before publication takes place in this column. For lists of state and county officers see advertising page 6. The Council of the California Medical Association has instructed the editors to allocate one page in every issue for Woman's Auxiliary notes.

*Hygeia*.—Your national president, Mrs. A. B. McGlothlan, and your national chairman for *Hygeia*, Mrs. Robert N. Herbert, desires your national press and publicity chairman to give you with these items a special reminder concerning *Hygeia*.

There are many auxiliary women who are enthusiastic about *Hygeia*. There are some who are indifferent. What, would you say, is the occasion for this difference in attitude?

It would be a safe wager that the indifferent auxiliary woman is one who does not see and read *Hygeia*. Familiarity in this case is a cure for indifference.

Did you know the *Hygeia* subscriptions through auxiliary efforts are more than 50 per cent over what they were last year?

Did you contribute to this increase? If so, congratulations to your ward. Keep up the good work. If you did not so contribute, join the army now of those who read *Hygeia* and want to spread its gospel.

From the office of our national president, Mrs. A. B. McGlothlan, 821 North Twenty-fourth Street, St. Joseph, Missouri, or from the national *Hygeia* chairman, Mrs. Rogers N. Herbert, 1509 Stratton Avenue, Nashville, Tennessee, you may secure any one of the following auxiliary productions:

*Hygeia* talks and suggestions for their use:

(a) *Hygeia*, a Help for Teachers.

(b) *Hygeia*, a Help for Mothers.

(c) How the Nurse Can Use *Hygeia*.

(d) *Hygeia* for Leaders of Teen-Age Girls.

(e) Why the Doctor Is Interested in *Hygeia*.

One of the approved uses to which your communities' share in the fund from the tuberculosis Christmas seal stamps may be applied is the placing of *Hygeia* in the public schools.

Here are two other good suggestions; plan to use subscriptions to *Hygeia* as Christmas gifts. Send to *Hygeia* publishers lists of heads of families of children where *Hygeia* is not taken, but where it might be taken and appreciated.

*Kentucky Bulletin*.—The Woman's Auxiliary to the Kentucky State Medical Association is receiving deserved praise from the State Board of Health for important services.

All who have received the November bulletin of the Kentucky State Board of Health are impressed with the successful way in which the important information is presented to the reader.

In the foreword this sentence appears: "The State Board of Health desires to express its gratitude to the Woman's Auxiliary to the Kentucky State Medical Association for the splendid way in which this work has been accomplished."

The "question and answer" form in which this information is assembled makes it easy to read and easy to understand. Such joint work of state boards of health and woman's auxiliaries to state medical associations open up a new sphere of helpfulness to auxiliaries.

This Kentucky bulletin is devoted to the medical and health laws of Kentucky and the United States Public Health Service as it applies to that state, and is designed especially for all Kentucky state schools and colleges. It is surely highly valuable as well to all citizens.

*Program Work in Kansas*.—In Kansas the present publicity chairman, Mrs. J. T. Hunter, is asking all auxiliaries to look over their records and refresh their memories of past activities, and report not only present proceedings, but all interesting plans and activities engaging any of the auxiliaries in the past. It is believed valuable results may issue from these exchanges of experiences and ideas.

*Philanthropic Work in Pennsylvania*.—Last summer's philanthropic work of the Dauphin County, Penn-



sylvania, Auxiliary was outstanding. Its Welfare Committee took little vacation, for during the twelve weeks of the Christmas seal camp, provided by the Tuberculosis Society for sixty-six children, this committee took care of the sewing and mending for those children, provided all the jellies and six dozen cakes weekly, and several treats of ice cream and candy; provided fifty pairs of blunt scissors for the children's use; donated a bookcase for the recreational hall; and arranged weekly entertainments for the children. This was certainly very fine auxiliary care for tuberculous children.

MRS. LOUIS H. DYKE,  
Chairman Publicity and Publications Committee.

## NEVADA STATE MEDICAL ASSOCIATION

A. C. OLMSTED, Wells.....President  
O. HOVENDEN, McGill.....President-Elect  
J. H. HASTINGS, Pioche.....First Vice-President  
E. E. HAMER, Carson City.....Second Vice-President  
HORACE J. BROWN, Reno.....Secretary

### NEVADA STATE MEDICAL ASSOCIATION ANNUAL SESSION OF 1931

The twenty-eighth annual meeting of the Nevada State Medical Association was called to order on September 18, 1931, at 9:20 a. m. by the president, R. P. Roantree, in the assembly room of the Nevada Hotel, Ely, Nevada.

President Roantree made a short welcoming address after which Mr. William R. Woods, supervisor of this district for the Bureau of Industrial Alcohol, was introduced and gave a short talk on the use and abuse of physicians' alcohol prescriptions.

The regular order of the program was then taken up.

**Scientific Papers.**—Rulon S. Tillotson, M. D., Woodland, California, read a very interesting paper on "*The Nasal Accessory Sinuses as Sources of Infection.*" Paper was discussed by E. M. Neher, W. D. Donohue, R. R. Hampton, and R. S. Tillotson.

E. M. Neher of Salt Lake City read a paper on "*Practical Suggestions for the Care and Treatment of the Eyes by the Physician in General Practice,*" which was discussed by Rulon S. Tillotson, E. E. Hinckley, A. G. Thomas, R. R. Hampton, and E. M. Neher.

Clarence Snow of Salt Lake City read a paper on "*Cardiac Disease,*" which was well illustrated by a number of lantern slides.

The above program closed the scientific session for the first day. The members and visitors were then taken to the Nevada Consolidated Copper Company's hotel at Ruth where an excellent luncheon was served. Following this a trip was made into the enormous copper pit. Upon return to Ely the business meeting was called to order at the Nevada Hotel at 4:30 p. m., with President Roantree in the chair.

On motion, the reading of the minutes of the previous session was dispensed with.

**New Members.**—On motion of M. A. Robison, seconded by R. A. Bowdle, the following were elected to membership:

Dan Coll of Susanville, California; W. W. Cook of Ely, Nevada; Bart Hood, William B. Johnson, W. H. Miller, John E. Wright of Reno, Nevada; Francis J. Morley of Gardnerville, Nevada; W. B. Ririe of East Ely, Nevada; F. M. Schramm of Hawthorne, Nevada; W. W. Stockham of Caliente, Nevada; John Stile of Alturas, California; James Thom of Carson City, Nevada.

**Deaths of Members During Last Year.**—The secretary reported that the following members have passed away since our last meeting:

G. W. Green, Ely, Nevada; C. J. Hood, Adrian, Michigan; W. S. Harrison, Overton, Nevada; M. J. Rand, Ely, Nevada.

This report was referred to the Necrology Committee for suitable memorial resolutions.

**The Report of the Military Committee.**—This report was made by T. W. Bath. It was voted that the report be accepted and made a part of the minutes.\*

**Emeritus Life Members.**—Secretary Brown proposed the name of Dr. F. J. Crane, who has been an active member of this Association for many years and who has now retired from active practice, for honorary life membership. Moved by M. A. Robison, seconded by G. O. Bradley, that the president and secretary be empowered to grant emeritus life memberships to Doctor Crane and all other members as such reach the age of retirement. Carried.

**Honorary Members.**—On motion of C. E. Piersall, seconded by M. A. Robison, the visiting essayists who are not already honorary members were made such.

**Vote of Thanks to Hosts.**—Moved by T. W. Bath, seconded by A. Huffaker that a vote of thanks be extended to the White Pine County Medical Society and the Nevada Consolidated Copper Company for the entertainment and many courtesies shown us. Carried.

**Balopticon.**—Moved by M. A. Robison, seconded by A. C. Olmsted that a balopticon be purchased. Carried.

**Woman's Auxiliary.**—A communication from the Woman's Auxiliary of the American Medical Association was read in which request was made that an auxiliary be formed in Nevada. It was voted that the communication be received and filed.

**Institute of Criminology.**—A communication was read from the American Medical Association concerning the forming of an Institute of Criminology in Nevada. Moved by D. A. Turner, seconded by C. E. Piersall, that the communication be received and filed. Carried.

**George Washington Bicentennial Commission.**—A communication was received from the George Washington Bicentennial Commission asking that we pass a resolution endorsing their program and enclosing a form of resolution. It was voted that this resolution be adopted and made a part of the minutes.

**Nevada Hospital for the Insane.**—Several members spoke on the unsatisfactory manner of handling patients at the Nevada Hospital for the Insane. It was voted that the president appoint a committee of three to investigate the conditions at this institution and report at the next annual meeting. The president appointed on this committee E. L. Creveling, S. K. Morrison, and Horace J. Brown.

**Election of Officers.**—The following officers were elected to serve for one year:

President-elect, O. Hovenden, McGill.

First vice-president, J. H. Hastings, Pioche.

Second vice-president, E. E. Hamer, Carson City.

Secretary-treasurer, Horace J. Brown, Reno.

Delegate to American Medical Association, Horace J. Brown, Reno.

Alternate, W. H. Frolich, East Ely.

**Next Annual Meeting.**—Moved by D. A. Turner, seconded by A. C. Olmsted, that the next annual meeting be held at Reno, and if possible at Bowers Mansion. Carried.

**Secretary's Expenses.**—Moved by D. A. Turner, seconded by T. W. Bath, that Horace J. Brown be allowed the sum of \$100 in addition to his salary to partly compensate him for unusual expenses incurred in attending this meeting. Carried.

Adjournment.

\* \* \*

The meeting was called to order on September 19, 1931, at 9:25 a. m., President Roantree in the chair.

M. Greene of Brooklyn, New York, was introduced and addressed the Association on "*Modern Methods of Treating Neuralgia in Its Relation to the Nerve Block,*" which was illustrated by lantern slides and the showing of the various instruments used in this work.

Walter G. Schulte of Salt Lake City read a paper on "*Hematuria.*"

\* This report by Dr. T. W. Bath is printed in this issue of California and Western Medicine, page 431.



Miley B. Wesson of San Francisco read a paper on "*Intravenous Pyelography (Uroselectan and Skiodan)—Its Value to the General Practitioner*"; with lantern slide demonstration.

Discussion of both the foregoing papers was by R. A. Bowdle, R. S. Tillotson, C. E. Piersall, and L. Michelson. The discussion was closed by Doctors Schulte and Wesson.

Martin C. Lindem of Salt Lake City read a paper on "*Surgical Infections*." Discussed by G. W. Pierce, W. H. Frolich, and J. E. Tyree.

George Warren Pierce of San Francisco read a paper on "*Recent Advances in Reconstruction Surgery*." Illustrated by moving pictures and lantern slides. Discussed by M. C. Lindem and J. E. Tyree.

J. E. Tyree of Salt Lake City read a paper on "*The Shoulder Joint*."

**Introduction of President-Elect Olmsted.**—President Roantree then introduced the president-elect, A. C. Olmsted of Wells, and turned over to him the gavel of authority.

**Visit to Nevada Consolidated Copper Company.**—There being no further business the meeting adjourned *sine die* and the members and visitors were taken to McGill, where the Nevada Consolidated Copper Company had prepared another excellent luncheon. After the luncheon a tour of inspection of the smelter was made.

**Attendance.**—The following members were in attendance at various times during the meeting: H. E. Belnap, Thomas Bath, G. L. Belanger, Horace J. Brown, R. A. Bowdle, G. O. Bradley, Jack C. Cherry, W. H. Frolich, J. H. Hastings, D. J. Hurley, E. E. Hinckley, O. Hovenden, A. Huffaker, E. B. Muir, A. C. Olmsted, C. E. Piersall, M. A. Robison, R. P. Roantree, D. A. Turner, J. M. Thorup, and W. B. Ririe.

**Honorary Members.**—The following honorary members and visitors were also present at various times during the meeting: Mrs. R. A. Bowdle, B. E. Bonde, M. Greene, R. R. Hampton, J. Kerby, M. C. Lindem, L. Michelson, E. M. and Mrs. Neher, W. D. Donohoe, George W. Pierce, Clarence Snow, Rulon S. Tillotson, J. E. Tyree, A. G. Thomas, W. G. Schulte, Miley B. Wesson, and Mr. William R. Woods, Jr.

R. P. ROANTREE, *President*.  
HORACE J. BROWN, *Secretary*.

## COMPONENT COUNTY SOCIETIES WASHOE COUNTY

On Tuesday evening, November 10, a joint meeting of the Washoe County Medical Society and the Washoe County Dental Society convened at the State Building.

The object of the meeting was to see the Castle film showing the relation of nutrition to dental health.

After reading the applications for membership of Doctors Magee of Yerington and Hund and Williams of Reno, all of whom were accepted for membership, the president asked the secretary to read the resolutions on the death of Dr. William L. Samuels, which occurred in Reno on November 1.

The resolutions were received and ordered to become a part of the minutes of the society. Following this Mrs. Inman Samuels of Reno, who has been investigating the possible acquisition of the Reno Hot Springs for health purposes, read a very splendid but brief paper on the history and mineral properties of the springs. The president appointed a committee to make general investigations.

Next followed the dental film, an object lesson of the highest scientific endeavor and of the greatest practical application. The film exhibited teeth from the mummies of the Pharaoh days of Egypt, and of the pueblo Indians of Peru and North America.

From these ancient people, especially the Egyptians, it seemed tooth decay with its accompanying distress was prevalent in those ancient days. The exhibits of experiments on monkeys and rats by insufficient vitamin diet showed conclusively that dental decay results from a nonbalanced diet with the absence particularly of vitamin C.

By a coördinating diet of milk, eggs, vegetables, meat, butter, fruit juices, or tomatoes, sometimes medicinally helped out with some iron preparations and cod-liver oil, it was demonstrated that dental caries and gingivitis are controlled and physical as well as dental health is restored. Going back to first measures it might be suggested that a more scientific examination of the parturient mother with reference to blood calcium and iron content, and to a properly balanced diet, would greatly influence the metabolism of the fetus, and bring about the millennium so much desired—one where dentists with their drills and forceps would cease to be the fear of child and adult alike.

Who knows if science may not at an early date require this in the interest of the parturient mother and child, as it now should require that every parturient mother receive enough iodine to rid the country of goiter in future generations?

THOMAS W. BATH, *Secretary*.

## UTAH STATE MEDICAL ASSOCIATION

R. A. PEARSE, Brigham City.....President  
F. M. McHUGH, Salt Lake City.....President-Elect  
L. R. COWANS, Salt Lake City.....Secretary  
J. U. GIESY, Kearns Building, Salt Lake City  
.....Associate Editor for Utah

## COMPONENT COUNTY SOCIETIES SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held at the Latter Day Saints Hospital Monday evening, October 26. Forty-four members and three visitors were present.

The meeting was called to order by President F. M. McHugh.

The following resolution of the Necrology Committee was passed:

### RESOLUTION OF REGRET

Whereas, Death has once more struck at the ranks of our profession and removed from our midst our professional brother, Dr. C. F. Wilcox; and

Whereas, We the other members of the Salt Lake County Medical Society mark his passing with feelings of regret born of long knowledge and acquaintance; be it

Resolved, That we hereby express that regret and tender to his family our most sincere sympathy in their loss; and that a copy of this resolution be made a part of the official minutes of the society, and a copy forwarded to the widow of the deceased.

The clinical program of the evening included papers on "A Neuropsychiatric Case" by John Llewellyn, "Ruptured Kidney" by Spencer Wright, and "Mixed Tumor of the Kidney" and "Basal Cell Carcinoma of the Arm" by L. R. Cowan.

The meeting adjourned at 9:10 o'clock after which refreshments were served.

BARNET E. BONAR, *Secretary*.

### Deaths

**Wilcox, Charles Frederick, Sr.** Died November 18, 1931, age 72 years. Doctor Wilcox was a graduate of the New York University Medical College, New York, 1890. Licensed to practice, 1893. Doctor Wilcox was a member of the Salt Lake County Medical Society, the Utah State Medical Association, and a Fellow of the American Medical Association.

**Worlton, Frederick Daniel.** Died November 19, 1931, age 49 years. Doctor Worlton was a graduate of the Rush Medical College, Chicago, 1912. Licensed to practice, 1912. Doctor Worlton was a member of the Utah County Medical Society, the Utah State Medical Association, and a Fellow of the American Medical Association.



## MISCELLANY

Under this department are ordinarily grouped: News; Medical Economics; Correspondence; Twenty-five Years Ago column; Department of Public Health; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the twentieth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

### NEWS

**Rife Microscope Demonstration.**—What might be called a supermicroscope, invented by Royal Raymond Rife, Ph. D., of San Diego, was shown on November 20 at the home of Dr. Milbank Johnson in Pasadena. Doctor Johnson, who is one of the founders of the Phi Rho Sigma Fraternity, had invited a former classmate, Arthur I. Kendall, head of the department of research bacteriology of the medical school of the Northwestern University to come to Los Angeles to test out this new instrument devised by Doctor Rife, which is such a radical departure from existing microscopes. The opening article in this number of CALIFORNIA AND WESTERN MEDICINE gives further details. The instrument was set up on the stone fireplace in the living-room of Doctor Johnson's residence and the physicians who had been invited to be present had the opportunity, each in person, to see micro-organisms at a magnification of five thousand diameters. In addition to the host, Dr. Milbank Johnson, and the guests of honor, Doctors Arthur I. Kendall and Royal R. Rife, there were present the following colleagues from Los Angeles and Pasadena: Doctors S. Fosdick Jones, C. M. Hyland, V. L. Andrews, Alvin G. Foord, Wayland Morrison, F. C. E. Mattison, Joseph Heitger, E. M. Hall, C. W. Bonyng, A. S. Hoyt, E. W. Butt, R. W. Lamson, A. H. Zeiler, R. W. Hammack, G. D. Maner, Ellis Jones, J. Brandon Bruner, Samuel J. Mattison, George Dock, O. O. Witherbee, Harold Witherbee, B. O. Raulston, Linford Lee, W. H. Scions, W. V. Brem, George H. Kress, Richard Winter, Albert Ruddock, Allan B. Kanavel, Aubrey Davidson, and R. B. Hill.

**Meeting of Northern District Society.**—The semi-annual meeting of the Northern District California Medical Society was held October 13 at the Traveler's Hotel, Sacramento.

The following officers were elected for the ensuing year: D. Schuyler Pulford of Woodland, president; Edward S. Babcock, Jr., of Sacramento, secretary; W. E. Bates of Davis, treasurer; Richard O. Schofield of Hobart Mills, first vice-president; Bart Powell, Jr., of Stockton, second vice-president. Board of Censors—Junius B. Harris and Frederick N. Scatena, Sacramento; Granville S. Delamere, Marysville; Newton T. Enloe, Chico; and C. Verner Thompson, Lodi.

The society elected the above officers by acclamation.

Edward S. Babcock of Sacramento presented a paper on "Cerebrospinal Meningitis"; H. J. Templeton of Oakland, "The Management of Premalignant and Malignant Conditions of the Skin"; and Alson Kilgore of San Francisco outlined the program of the Cancer Commission of the California Medical Association.

After dinner, attended by ninety-four, Doctor Lawhead of Woodland related interesting anecdotes of some of the older members of the society and Junius B. Harris, president of the California Medical Association, gave an amusing lantern slide talk on incidents in the early life of some of the most revered members.

Three charter members, William Ellery Briggs of Sacramento, George W. Stratton of Marysville, and T. P. Perry of Yuba City, were present at the meeting.

**Coming Meetings.**—*American Medical Association*, New Orleans, Louisiana, May 9-13, 1932, Olin West, M. D., 535 North Dearborn Street, Chicago, Illinois, Secretary.

*California Medical Association*, Hotel Huntington, Pasadena, May 2-5, 1932, Emma W. Pope, M. D., Room 2004, 450 Sutter Street, San Francisco, Secretary.

*Philippine Islands Medical Association*, Manila, December 15-18, A. S. Fernando, M.D., 817 Taft Avenue, Manila, Secretary.

*Society of American Bacteriologists*, Baltimore, December 28-31, James M. Sherman, M. D., Cornell University, Ithaca, New York, Secretary.

*American College of Physicians*, San Francisco, California, April 4-8, 1932, William J. Kerr, University of California Medical School, Fourth Avenue and Parnassus, San Francisco, General Chairman.

**Lane Medical Library Historical Section Dedication.**—Professor Henry S. Sigerist, the director of the Institute on the History of Medicine of Leipzig, Germany, who is now giving a course of lectures at Johns Hopkins University, will be present and assist in the dedication of the historical section of the Lane Medical Library and give two lectures on the history of medicine at the Medical School of Stanford University on January 11, 12, and 13, 1932.

**Nineteen Thirty-Two Lane Lectures.**—The Stanford University School of Medicine, San Francisco, announces a special course of popular medical lectures during the winter quarter of 1932 in celebration of the fiftieth anniversary of these lectures. The popular medical lectures were established by Dr. Levi Cooper Lane in 1881. Doctor Lane was the founder of the Cooper Medical College, now the Stanford University School of Medicine, the Lane Medical Library, and the Lane Medical Lectures. The popular medical lectures have been given in San Francisco during fifty consecutive years with increasing appreciation by the public. The lectures for 1932 are appropriately offered as a summary of the outstanding achievements in medicine during the past half-century. The following program of lectures by outstanding representatives of the respective fields in medicine has been arranged, to be given on alternate Friday evenings at 8 o'clock in Lane Hall, Stanford University School of Medicine, Sacramento and Webster streets, San Francisco:

January 8—"Dr. Levi Cooper Lane and the Popular Medical Lectures," Dr. Emmet Rixford, San Francisco.

January 22—"Half-Century of Progress in the Recognition and Treatment of Disease," Dr. George Dock, Pasadena.

February 5—"Achievements in Surgery of the Past Fifty Years," Dr. Andrew Stewart Lobingier, Los Angeles.

February 19—"Contribution of Experimental Biology and Medicine to the Alleviation of Human Suffering," Dr. Herbert M. Evans, Berkeley.

March 4—"Social Aspects of Child Welfare, Dr. Henry Dwight Chapin, New York City.

March 18—"Fifty Years of Progress in the Prevention of Disease," Dr. Jacob Casson Geiger, San Francisco.

**Northern District Eye, Ear, Nose, and Throat Meeting.**—On September 8, 1931, the meeting of the Northern District Eye, Ear, Nose, and Throat Society was held at the Sutter Club, Sacramento, preceded by a dinner. Seventeen members were present.



Dr. W. E. Briggs, chairman, presided.

The papers of the evening were given by Doctors M. A. Haworth and Barton Powell, Jr.

The meeting adjourned to meet again the second Tuesday in October in Sacramento.

**Secretaryship of the American Medical Association Council on Medical Education and Hospital.**—The *Journal of the American Medical Association* of November 28, 1931, in its abstract of minutes of meetings of Board of Trustees held in Chicago, November 12 and 13, 1931, prints the following item: "On the nomination of the Council on Medical Education and Hospitals, Dr. William D. Cutter, formerly dean of the University of Southern California, was elected secretary of the Council to succeed Dr. Nathan P. Colwell, who has been retired on account of indisposition."

**Postgraduate Courses in Medicine and Surgery in Berlin.**—The Association of Lecturers (Dozentenvereinigung) for medical postgraduate work in Berlin is an association of about two hundred professors, docents, and directors of hospitals and disposes altogether of over twenty thousand beds. The offices are located in the Kaiserin Friedrich-Haus, Berlin NW 6, Luisenplatz 2-4. Any who are interested can obtain booklets of information by writing to the above address.

**The Western Branch Society of the American Urological Association** held its seventh annual meeting at San Francisco, November 6 and 7.

An exceptionally good program was provided and the attendance was above the average at all sessions.

The following officers were elected for the 1932 meeting, which will be held at Portland, Oregon, July 1 and 2, 1932: Dr. H. Welland Howard of Portland, president; Dr. A. W. Hunter of Vancouver, president-elect; Dr. F. S. Dillingham of Los Angeles, secretary-treasurer.

The following were elected members of the Executive Committee: For one-year term, Dr. Walter G. Schulte, Salt Lake City; for two-year term, Dr. Wirt B. Dakin, Los Angeles; for three-year term, Dr. Miley B. Wesson, San Francisco.

## MEDICO-LEGAL

### EXPERT MEDICAL TESTIMONY—WHAT CAN THE COURTS DEMAND?

#### An Important Recent California Supreme Court Decision

A decision of unusual importance and interest to the profession was rendered by the Supreme Court of the State of California in the case of *Peggy Webb et al. vs. The Francis J. Lewald Coal Company et al.*, 82 Cal. Dec. 595.

The relevant facts of the case are as follows:

Dr. Joseph Catton of San Francisco had examined the plaintiff, Peggy Webb, at the request of her attorney, and submitted a report to him. The plaintiff did not produce Doctor Catton as a witness, and he was subpoenaed by the defendants. When called to the stand he refused to give any testimony concerning his examination of Peggy Webb, taking the position that he had been called by the attorney for the plaintiff to make the examination, and it would be unethical for him to testify at the request of the defendants, and, further, that no financial arrangements had been made with him by the defendants to testify.

The District Court of Appeal, in passing on this question, said:

"All that Doctor Catton need do, if the trial court was correct, to keep from the stand would be to demand such an amount for testifying as would be impracticable for defendants to pay. Such is not the law. 'The authorities, however, all agree that, in the absence of an express contract to pay a physician for his testimony as an expert, he is only entitled to the statutory fee. The uni-

form rule seems to be that a physician who has acquired knowledge of a patient or of specific facts in connection with the patient, may be called upon to testify to those facts without any compensation other than the ordinary witness receives for attendance upon court. In those states recognizing the right to extra compensation for a physician who testifies as an expert it is uniformly held that where such testimony is sought to be elicited without requiring any particular investigation on the part of the physician that he is required to testify without extra compensation.'"

This decision was brought to the attention of the Council of the California Medical Association, and Hartley F. Peart, the Association's attorney, was instructed to file a brief as *amicus curiae* on the hearing of the case in the Supreme Court. Mr. Peart in his brief took the position that an expert may not be compelled to testify to matters of opinion as distinguished from facts within his knowledge unless arrangements shall have been made with him to compensate him, and pointed out that the decision in the case of *McClenahan vs. Keyes*, 188 Cal. 574, merely held that where an expert witness voluntarily attends the court and testifies, he cannot recover extra compensation on the theory that he was an expert witness; that there was no implied contract for the payment of extra compensation due to the fact that the doctor had been used as a witness, and that the only other decision by the Appellate Courts of California, namely, that of *People vs. Conte*, 17 Cal. App. 771, holds that a physician cannot be compelled without compensation to make an examination of an exhibit where it would be necessary for him to use his expert knowledge in making such examination in order to prepare himself to testify as an expert.

Many interesting decisions from courts of other states were presented on this subject in the brief of the general counsel. One of the most interesting is the case of *United States vs. Cooper*, 21 D. C. 491, where the court said:

"But the case is different where a person is summoned to testify not as to facts, but to give the result of his knowledge upon a question of a scientific character involved in the suit. That is something which such person is no more obliged to communicate without compensation to a court or jury than he is to give gratuitously to the general public the result of his erudition upon any subject involving research; for this is his own property, his stock in trade, which he can no more be required to present as a free gift to the public than the merchant can be forced to surrender his goods at the bidding of a court for the public benefit."

The Supreme Court in dealing with the position of Doctor Catton and his refusal to testify from ethical considerations said in part:

"First, it is our conclusion that the testimony was privileged under the broad language of subdivision 4 of section 1881 of the Code of Civil Procedure, which reads in part: 'A licensed physician or surgeon cannot, without the consent of his patient, be examined in a civil action, as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient. . . .' The word 'act' used in this connection seems to cover the very service performed by the witness here. He acted for respondent by making the examination and by making and delivering to her counsel a written report of his findings. He was her physician and she his patient only for this limited purpose. This seems clearly also to be a case where such information would be of value to the attorney in the proper presentation of her case.

"But counsel insists that a controlling exception to the above rule is found in the further provision of said subdivision 4 of said section, which reads as follows: 'Provided, further, that where any person brings an action to recover damages for personal injuries, such action shall be deemed to constitute a consent by the person bringing such action that any physician who has prescribed for or treated said person and whose testimony is material in said action shall testify. . . .' We do not believe that the words 'prescribed for or treated' of this proviso cover the identical scope of the words 'to prescribe or act' found in that portion of said subdivision 4 above quoted. Webster defines the word 'prescribe' as—to direct, designate or order the use of a remedy as, 'the doctor prescribed quinine'; he defines the word 'treat' as—to care for medicinally or surgically. A physician may properly act for a patient without having thereby prescribed for or treated him and the case before us seems fairly to be an illustration of this fact.

"Moreover, if it be conceded that the witness neither prescribed for, treated nor acted for respondent as a patient, the testimony sought by the particular question at least was privileged, nevertheless, under subdivision 2 of said section 1881 in that it appears that respondent caused herself to be examined and a report made for the purpose of aiding her counsel in the presentation of her cause. In other words, 'communications between an at-



torney and the agent of his client are also entitled to the same protection from disclosure as those passing directly between the attorney and his client' (28 R. C. L., sec. 161, p. 571)."

On the question of the right of an expert witness to compensation, the Supreme Court said:

"The troublesome question as to when it is proper in litigation between private parties to compel an expert witness to give his professional opinion, without consent or compensation, though discussed by counsel and by amici curiae, does not fairly arise on this record; hence it will not be here considered."

This decision, written by Mr. Justice Preston, and concurred in by the entire court, leaves open the question of when, and under what circumstances, an expert witness is entitled to compensation as not fairly arising on the record in the case, and eliminates the adverse doctrine of the decision by the District Court of Appeals. At the same time the ruling as quoted above protects the physician and surgeon acting as an agent for an attorney in the confidential communications made by the physician as such agent to the attorney for the party.

### LEGAL LICENSE IS NECESSARY FOR MEDICAL PRACTICE IN CALIFORNIA

In October an interesting decision was handed down in the Appellate Department of the Superior Court in Los Angeles, having to do with the right of a person holding an M. D. degree, who had secured a license to practice in California, to hold himself before the public of California as an M. D. with implied right to practice medicine. A memorandum which has come to the editor gives the following additional information:

A state has the right to enact a statute declaring that no person shall put the letters M. D. after his name unless he shall have been admitted to practice within the state. The mere fact that the person using the degree may actually have acquired such a degree by study from a university, or that he may have been licensed to practice in another state does not entitle him to practice in the State of California. Nor does a law which refuses to deny the right to persons licensed in other states to practice medicine in California violate the Constitution.

Declaring these principles, the Appellate Department of the Superior Court in an opinion written by Judge Victor R. McLucas and concurred in by Judge Leon R. Yankwich has upheld the conviction of Orrin Joslin for holding himself out as a physician and using the letters M. D. after his name. Joslin was tried before Judge Frank M. Smith and a jury, who found him guilty. He was fined \$250. There being nothing unconstitutional in the provisions which deny the right to use the letters M. D. to those not licensed in California

### "RADIO METHOD" THERAPY—AN APPELLATE COURT DECISION THEREON

Readers of CALIFORNIA AND WESTERN MEDICINE who perused the excerpt from the Santa Ana Register, as printed in the second column of the California State Board department on page 408 of the November CALIFORNIA AND WESTERN MEDICINE, will no doubt agree that the methods therein detailed have less merit for use than many of the remedies given in the series of articles on "Sixteenth Century German Medicine" which were printed in the July, August, and September 1930 issues of this JOURNAL. If some of the remedies of several hundred years ago were provocative of laughter or ridicule, the same could be stated of the measures used by the osteopathic practitioner in our present day and generation, as reported above.

The full legal report of the case is printed in the August 26, 1931, *California Appellate Decisions*,\* page 608, and makes interesting reading. To better appreciate the excerpt from the Appellate Court decision, which is printed below, it is desirable that the item from the Santa Ana Register be first read, that item in itself being a rare gem more than worthy of the small amount of time necessary for its perusal. The full decision covers some eighteen pages, and from this the following concluding paragraphs are taken:

"The appellants contend that the witnesses, offered as experts, were not qualified as such to answer the hypothetical questions as to the proper methods of treatment, not using these methods themselves, and knowing nothing concerning them. The appellant, Lloyd E. Tilbury, testified that he was an osteopathic physician and that he had perfected what he termed a diagnostic machine which he used for the purpose of diagnosing the patient's illness. After ascertaining the nature of the disease his patient was suffering from, he would treat the disease with another machine known to him as the "radio method." Such machines were only known to Dr. Tilbury and were his own invention not in general use, nor accepted by any of the schools of medical practice or drugless healing. The qualifying questions were sufficient to establish the competency of the several medical doctors offered as witnesses by the plaintiff by reason of the fact that their education and experience was such as to qualify them to testify as expert allopathic physicians and surgeons. The basis of the objection to their competency as witnesses concerning the method of treatment as administered by Dr. Tilbury goes to the treatment of respondent's ailment by appellants' radio methods, about which they testified they knew nothing, such methods not being recognized by the allopathic school of medicine.

"These objections to the testimony went to the weight, rather than to the competency of the evidence. Simply because a person claims to have some new process or method of healing peculiar to himself is no reason why other persons who do not claim such process or method are not, from education and practice, competent to judge whether the treatment administered was negligently or carelessly done. If we should hold otherwise, it would open the door to all sorts of nonprofessional persons who would undertake to treat all kinds of diseases and disorders, and no evidence could be brought to establish the negligence of such treatment. The practitioner, knowing that no such person could be found to testify against him with regard to such negligence, the injured person would be without remedy, and this cannot be the law. This view is also expressed in *Longan vs. Weltmer*, 180 Mo. 322, 79 S. W. 653, 103 Am. St. Rep. 573. The value of an opinion of an expert witness depends on his intelligence, knowledge and experience, and his testimony is a guidance for the jury. What weight, if any, they will give to such testimony is entirely with them.

"Dr. Diebold, who qualified as an osteopathic physician, testified that the methods used by the defendant were unknown to the practice of osteopathy and that a physician who did use such methods did not use ordinary care and diligence. This, like the answers of the allopathic testimony, went to the weight of the evidence, rather than to its competency, and it was for the jury to decide whose testimony they would rely upon. We might go one step farther and say that the opinion of an expert that the treatment must have been improper, based on the result of recovery, is evidence on which the jury may find negligence. (*Sawyer v. Berthold*, 134 N. W. 120, 116 Minn. 441; *Reardon vs. Richmond*, etc., 21 Cal. App. 357, 359.)

"Much stress is laid to the fact that the form of the questions was such as to usurp the prerogative of the court and the jury as to negligence. In answering defendants' contention, it must be understood that the defendants were not treating the plaintiff by the methods of the osteopathic school of treatment, but by the "radio method," a method of Dr. Tilbury's invention, a method of an unknown quantity. When one, with his own inventions, holds himself out as a healer of diseases and accepts employment as such, he must be held to the duty of reasonable skill in the practice of his profession, and when he seeks fields of experimentation he will be held accountable for any damages proximately caused by the unskillful treatment of his patients.

"This court passes no judgment on the theory of his profession, the source from whence it came, nor the appliances with which he works. With these we have no concern, but rather look to the results. The law holds him responsible if he does his work unskillfully, although he does the best he can. He assumes the risk of the quality and accuracy of his genius or inventions. On the same principle one who holds himself out as a medical expert and accepts employment as a healer of diseases, but who relies for diagnosis and remedies on some mechanical invention of his own, which invention is unknown to all schools of medical science, in like manner takes the risk of the quality and accuracy of such mechanical invention. If these move so imperfectly or inaccurately that he fails to treat the patients with reasonable skill, he is liable for the consequences. The law takes cognizance of the question: Did the practitioner render the services he undertook in a reasonable manner? That question as applied to the appellant, Lloyd E. Tilbury, the jury, on sufficient proofs, we believe, have answered in the negative.

"While it is true that the physicians who testified on the part of the plaintiff did not claim or pretend to know anything about the practice of the "radio method," they were nevertheless competent, from education and experience, to testify as to whether the treatment which plaintiff underwent was proper. Simply because a person claims, or pretends to have invented a machine for diagnostic and curative purposes which is not known or recognized by any school of medical science, which machine possesses certain powers of healing peculiarly within the knowledge of the inventor, is no reason why other persons who know nothing of the workings of such machine but who have knowledge acquired from education, experience and practice, are not competent to judge

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whether the treatment administered is negligently or carelessly done. Otherwise as we have heretofore indicated, any nonprofessional person might undertake to treat certain disorders, and if appellants' position be correct in law, it matters not how carelessly or negligently his acts were performed, because no one could be obtained of the same pretensions to testify with respect to such treatment and the injured person would be without remedy. This contention we think untenable and has been so held by other jurisdictions."

### MEDICAL SPECIALISTS Canadian Regulations Thereon

Licensure of medical specialists is a subject which is not infrequently discussed in medical meetings. In Canada, the Province of Alberta has legal regulations covering such licensure. Through the courtesy of President Robert C. Wallace of the University of Alberta the editor has received copies of the "Regulations Concerning Medical Specialists," and also of the "Regulations Concerning Dental Specialists." The regulations regarding medical specialists are here reprinted for their suggestive value. It is to be noted that these regulations are analogous to what would be "state laws" in the United States, and that the administration is through the "province university," or what would be a "state university" in the United States of America. (See, also, filler item on page 480 of this issue of CALIFORNIA AND WESTERN MEDICINE.) The regulations are as follows:

#### REGULATIONS CONCERNING MEDICAL SPECIALISTS IN THE PROVINCE OF ALBERTA, CANADA

The following regulations regarding specialists in medicine are published under the authority of an Act to amend the Medical Profession Act, assented to April 8, 1926.

*The Medical Profession Act Amendment Act, Section 2, states as follows:*

2. The Medical Profession Act, being Chapter 209 of the Revised Statutes of Alberta, 1922, is amended as to Section 70 thereof by adding thereto as Subsections (2), (3), (4) and (5), the following:

"(2) No person shall advertise or hold himself out to the public as a specialist or as being specially qualified in any branch of any class or system of practice in this section mentioned, without having received from the registrar of the University of Alberta a certificate of having complied with such conditions precedent as to qualification or fitness as may be prescribed by the senate of the said university.

"(3) The said conditions may be based either upon the possession of certain diplomas or other professional qualifications or upon compliance with prescribed tests by way of examination or otherwise.

"(4) Any person committing a breach of Subsection (2) of this section shall be liable to the same penalty as if he had committed a breach of Subsection (1).

"(5) Any breach of this section shall be deemed to be unbecoming and improper conduct within the meaning of Section 45 of this Act."

*Pursuant to the authority conferred upon the Senate by the above, the Senate of the University of Alberta, Canada, has enacted the following regulations:*

1. The term "specialist" used in the said Act shall, for the purpose of these regulations, be defined as a graduate of a medical school recognized by the Senate of the University of Alberta who, having complied with the educational requirements set forth hereunder, has been granted the right to practice in some special field of medicine or surgery in the Province of Alberta.

2. Candidates shall have (a) one year's experience as graduate interne in a recognized and standardized general hospital, or (b) three years' experience in the general practice of medicine or surgery, and in either case shall thereafter have spent not less than eighteen months in training for their chosen specialty, or shall have the equivalent of such training. The hospital

for special study shall be connected with an institution capable of giving graduate instruction or it shall be a recognized teaching hospital in which instruction in the special department concerned is given. The candidates shall act as internes, externes or clinical assistants during the time of the special training referred to above and shall be required to show credit for attendance; further, they shall pass such examinations as the senate may prescribe.

3. Candidates who were registered as members of the College of Physicians and Surgeons of the Province of Alberta prior to the enactment of these regulations shall receive due consideration for the length of time of practice and for the experience obtained during that time in the specialty for which a certificate is sought.

4. Candidates must conform to the code of ethics laid down by the Canadian Medical Association.

5. (a) There shall be a special committee to be known as *The Committee on Specialists in Medicine and Surgery*, consisting of the following: the Dean of the Faculty of Medicine, the head of the Department of Medicine, the head of the Department of Surgery, the head of the Department of Pathology, the head of the Department of Bacteriology and Hygiene, the Deputy Minister of Public Health (if a doctor of medicine), the Registrar of the College of Physicians and Surgeons of the Province of Alberta, and such other members of the medical profession in the Province as may be appointed from time to time by the senate on the nomination of the president of the university.

(b) Such committee shall consider all applications for specialists' certificates and make their report thereon with their recommendations in respect thereto to the senate.

(c) Applications, accompanied by credentials, shall be sent to the registrar of the University of Alberta for consideration by the Committee on Specialists in Medicine and Surgery.

## CORRESPONDENCE

### Subject of Following Letter: Comments on Selection of a Health Officer for the City of Los Angeles

EDITOR'S NOTE.—In Los Angeles Dr. Granville MacGowan has often been referred to as the dean of the medical profession of that city. He was president of the California Medical Association in the year 1924.

He will also be remembered by those of a more recent generation as having been the colleague who instituted the suit against the "Medical Service Corporation," in which suit the opinion was handed down by the court declaring it to be illegal for corporations to practice medicine in California.

The following letter is a copy which was sent to the editor and is here printed because it bears on some editorial comments in this issue of CALIFORNIA AND WESTERN MEDICINE (see page 458).

October 27, 1931.

The Board of Councilors,  
Los Angeles County Medical Association, Addressed.  
Gentlemen:

In the troubles which the health commissioner, Doctor Parrish, is having I notice a condition which I have never known before. In the charter of the city, under which my friend Henry Hazzard was elected mayor, those parts which related to the health department, board of health, health commissioner, or health officer, as he was then called, were written by Dr. Joseph Kurtz and myself. The board of health consisted of four members and the mayor; these members did not all have to be physicians, but three of them did and it was arranged so that the board of health should be divided in such a way that two of the members should belong to the Republican party and two to the Democratic party. We were very anxious that the board of health should never be used as a political factor.

During the time of my successor, the late Doctor Powers, for four years, I was the power behind the throne. I overlooked everything that related to changes in law, and gave all matters a great deal of attention. I arranged all laws and ordinances relating to the health department and took care that in the succeeding mayor-



alities of the Harper, Eaton, and Snyder administrations no changes were made in the health department without notification and consultation. Of course we were country people then, but we did very well with our health department, and we were always ready to meet emergencies when they arose. The medical profession was always consulted, and of the members of the board of health at least two were medical men.

Through a change, which I do not understand, the health board during the present administration has consisted of laymen altogether. I do not know how or why this occurred, but it is bad business and distinctly inimical to the medical profession, the members of which are better qualified by their education and by their attainments in health matters, to pass upon such matters than any set of laymen who could be chosen.

I have no brief to defend Doctor Parrish; he has been a wonderfully capable health officer. . . .

The present board has chosen a good clean man to succeed Doctor Parrish, but a man without any definite experience in health matters, and he unquestionably is being placed in a position where, under the present method of constituting a health board, he is liable to be sorry that he accepted the appointment.

Under any circumstances, I warmly commend to the councilors of the Los Angeles County Medical Association the advisability of informing themselves, if a change cannot be made in the character of the appointments, so that the Los Angeles County Medical Association be represented by at least two members on the board of health, and that at least one of the remaining members be a sanitary engineer.

Gentlemen, accept my respects.

GRANVILLE MacGOWAN.

#### Subject of Following Letters: A Query to Eastern Public Health Authorities on Los Angeles Public Health Situation, and Replies Thereto.

*To the Editor:*—In connection with some recent events in the health department of the city of Los Angeles, I am taking the liberty of sending to CALIFORNIA AND WESTERN MEDICINE copies of a letter which I wrote, and the replies thereto from H. S. Cumming, M. D., surgeon general of the United States Public Health Service and from John A. Ferrell, M. D., of the International Health Division of the Rockefeller Foundation. It seems to me that these reply letters should be of interest to members of the California Medical Association.

Respectfully submitted,

Los Angeles. E. H. ANTHONY.

#### *Letter From Doctor Anthony to Doctors Ferrell and Cumming*

October 28, 1931.

John A. Ferrell, M. D.,  
Associate Editor, Rockefeller Foundation,  
61 Broadway, New York City, N. Y.

and  
Hugh S. Cumming, M. D.,  
Surgeon General, U. S. Public Health Service,  
Washington, D. C.

Dear Doctors:

Having been at one time a health commissioner of Los Angeles, and being interested in public health, I would like to submit to you for my own information a hypothetical question.

The charter of the city of Los Angeles requires that a doctor shall have at least three years' administrative experience in health work before he can qualify for the position of health officer.

Would three years as colonel in the Medical Corps of the United States Army during the World War, with no other public health experience, and in private practice since that time, qualify a physician and surgeon for this position?

Personally I believe that the very best medical officer of experience in public health should be secured for a city of over a million people as has Los Angeles, and I am also opposed to a layman board of health.

Trusting to hear from you, I am

Fraternally yours,

E. H. ANTHONY.

#### *Reply of Surgeon General Cumming*

November 3, 1931.

My dear Dr. Anthony:

I have your letter of October 28, addressed to Dr. Ferrell and myself, requesting our opinion as to whether service for three years as colonel in the Medical Corps of the Army during the World War and private practice since that time with no other public health experience would qualify a physician and surgeon for the position of health commissioner of Los Angeles, and informing us that your city charter requires three years' administrative experience in public health work as a prerequisite for appointment to a position of health officer.

I thoroughly agree with you that a city such as Los Angeles should employ none but an experienced man for such an important position. Your question is rather hard to answer categorically unless one knows the particular duties to which the man was assigned during his service as a medical officer of the Army during the war. For instance, if he spent his three years' service upon a detail in connection with sanitation, acting as health officer of camps or communities, the experience would certainly be very valuable in giving an opportunity for study of public health methods. If, on the other hand, the individual were simply engaged in surgical work or administrative work other than public health, such service would have been of comparatively little use.

It has been thirteen years since the war ended and during this period there have been marked advances both in administrative and technical public health work. If such an individual had dissociated himself from contact or interest in public health work and devoted himself to ordinary clinical medicine during that period, he would certainly be greatly handicapped in assuming the office of commissioner in charge of the health of such a great city as Los Angeles.

Sincerely yours,

H. S. CUMMING,  
Surgeon-General.

#### *Reply of Associate Director Ferrell*

November 4, 1931.

Replying to your letter of October 28, I beg to advise that I have noticed from the newspapers that Doctor Parrish has been succeeded as health officer by Dr. Charles W. Decker. I regret I do not know these gentlemen well enough to warrant an opinion as to their respective qualifications as city health officer. In general I am an ardent advocate of placing public health on a professional basis and as rapidly as practicable requiring minimum eligibility qualifications for the important positions. The preparation for the work, I believe, would involve both school of public health training and successful experience.

Very truly yours,

JOHN A. FERRELL.

#### Subject of Following Letter: Notice from California Board of Medical Examiners' Office on an "Insurance Company Laboratory" Solicitor.

San Francisco, California,

November 6, 1931.

Yours of October 8,

Re: E. Osmun (or Osman).

Gordon L. Helstrom, M. D.,  
115 South Sierra Avenue,  
Fontana, California.

Dear Doctor:

The California Medical Association has forwarded us your letter relating your experiences with E. Osmun, an alleged M. D., who you state is traveling around the state claiming to represent about 120 insurance companies and that he has been delegated to select a medical examiner in each town, his reimbursement consisting of \$1 for each specimen of urine sent to the San Diego Laboratories; however, each examiner selected by him is charged a fee for "form blanks and containers for urine."

Robert P. Little, M. D., 139 North Tenth Street, Santa Paula, relates a similar experience with a "Dr. Osman of Hollywood, (claiming to be) a graduate of Columbia University Medical College some thirty years ago," who called on Dr. Little, stating that he represented leading insurance companies, relating that the examination of urine was to be made in his "Hollywood Laboratory," he requesting Dr. Little to give him \$3.50 in advance to pay for postage necessary to send Dr. Little's name to the various insurance companies.

Osmun is apparently working a petty "racket," the sum involved being so small that no doubt he will be able to impose on a number of licentiates.

We are sending a copy of this letter to Dr. Little, who fortunately was suspicious and is, therefore, \$3.50 ahead of the game.

We hope that more licentiates, when approached by Osmun will be suspicious, which will soon put a stop to this new "racket."

We will use our every endeavor to head him off and will suggest to the editor of CALIFORNIA AND WESTERN MEDICINE that they issue a warning in that publication.

Very truly yours,

C. B. PINKHAM, M. D.,  
Secretary-Treasurer.



## LEGAL CHECKS IN CALIFORNIA ON PRACTICE OF MEDICINE\*

California has been one of the outstanding states in waging a relentless warfare against both the dealers in fraudulent professional credentials and against those who, by fraud, attempt to secure a license to treat the sick and afflicted.

There are now eighty-one acceptable medical schools in the United States that maintain a high standard of educational excellence. The Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and the Federation of Medical Examining Boards are administrative bodies that share with these excellent medical schools the educational responsibilities so necessary to supply adequately trained and properly qualified practitioners of medicine and surgery.

Fraudulent credentials will be found just as long as there are dishonest persons in this world of ours; hence, it becomes necessary to erect legal obstacles and pass punitive measures with penalties sufficiently severe to discourage the making and the use of professional credentials.

Enacted regulatory measures designed to control this situation are effective only when administered honestly and fearlessly by an executive officer trained by long experience in evaluating credentials, and who has accumulated a resourceful fund of nation-wide historic knowledge regarding medical education and licensure.

Weak corporation laws in California as well as in many other states permit a so-called "university" or "medical college" or any other professional school to obtain from the state a charter with power to operate. The incorporators are not called upon to make any showing of financial responsibility, physical equipment or teaching personnel.

In California, five persons, perhaps feeling the urge to gather in some easy money, can frame a legal document known as "articles of incorporation" bristling with the most formidable legal verbiage, empowering the corporation to do everything. This document with a fee is filed in the Secretary of State's office, and—behold!—the state thereupon confers power to said corporation to grant any kind of a professional degree and to issue any kind of a professional diploma. In the majority of instances the "campus" is under the hats of the incorporators, and when they find any gullible purchaser for one of these "gold brick" diplomas, the promoters open their suitcases, declare a "commencement," and forthwith issue an ornate though worthless diploma.

California, as well as other states, has taken steps to correct this evil, though much is yet to be done to stop the incorporation of "fly-by-night" colleges and to regulate the operation of some loosely conducted professional schools that they may maintain a semblance of educational responsibility.

The California law was strengthened by chapter 719, Statutes 1931, that requires an annual report to be filed with the State Superintendent of Public Instruction by every corporation school, college, etc., having power to confer any professional degree. This report shall contain the course of study offered, names and addresses of all students, names and addresses of all teachers with the subjects taught by them, the degrees granted, the curricula on which such degrees were granted and any other information concerning the educational work or activities of said corporation as may be required by the Superintendent of Public Instruction. Failing so to do is a misdemeanor.

\* This article is by Charles S. Pinkham, Secretary of Board of Medical Examiners of the State of California, and is reprinted from the "United States Daily."

California in this law now has an added agency by which she can regulate those who fail to furnish adequate professional education to students who enroll. This law will lower the number of victims that heretofore have complained that promoters of "fly-by-night" colleges have influenced them to pay large sums for a most inadequate course and a valueless though ornate diploma.

California has been the "birthplace" of more than one diploma mill, but the "wares" of these "mills" have not been accepted by the Board of Medical Examiners of the state of California.

The Pacific Coast Medical College, operated in San Francisco some thirty years ago, was one of the earlier diploma mills. It is referred to in the early correspondence as a "fraudulent institution which was closed by the Board of Medical Examiners and the graduates of which college have never been admitted to practice in this State." The name was changed in 1903 to the West Coast Medical College. It has been reported that thirty-one medical diplomas were issued from this institution that existed only on paper.

Sporadic attempts have been made to forge credentials from reputable California medical colleges or to obtain from them by fraud bona fide medical credentials. More than one bogus medical diploma bearing the name of a defunct California medical college has been discovered through the vigilance of the executive officer of the California Board of Medical Examiners whose scrutiny of all professional credentials has spared California the ignominy of falling victim to the scheming diploma mill operators.

Years of administrative experience have led to the perfection of a California Board of Medical Examiners application blank that, when fully completed, furnishes a searching survey of the applicant's personal history and professional credentials with recent photograph attached, all attested before a notary public. When seeking a license in California on the basis of a medical license issued in another state, the executive officer of said state board is required to make certification of his record. The college that granted the professional degree is also called upon for certification, and the applicant must file his diploma.

The necessity of this detailed procedure was made evident by the disclosures of the national diploma mill uncovered in 1923, which featured traffic in a large supply of fraudulent credentials, professional diplomas, licenses to practice in a very few states all relating to medicine, dentistry, pharmacy, chiropractic, naturopathy, divinity ordination certificates, university degrees, fraudulent certificates bearing the name of the State Superintendent of Public Instruction of at least two states, high school diplomas and credentials, etc.

Threatened in 1916 by legal action by the Board of Medical Examiners for questionable proceedings in the issuing of medical credentials, its attorney reported the corporation dissolved; however, a host of medical diplomas bearing the name of the Pacific Medical College were assertedly issued for a cash consideration as late as 1924, though dated in 1917, that is, one year after the corporation was dissolved.

The eclectic medical examining boards in three states were reported as granting licenses to graduates of these low-grade Missouri medical colleges. Unsuccessful attempts by writ of mandate were made to force the California Board of Medical Examiners to grant licenses to graduates of these discredited medical schools.

In 1923, the "racket" had become so comprehensive, with ramifications in foreign countries, that the bubble burst when a shrewd reporter on a St. Louis, Mo., paper went through the mill, purchased medical and chiropractic diplomas, and reported that for a cash consideration he was offered at least one state medical license.



So comprehensive had been the growth of the degrees-conferring visionary colleges that reports related under one roof in Washington, D. C., were listed fifty "educational institutions," and that in the city of Washington one group of men had incorporated 200 "colleges" and "universities."

Diploma mill investigations were waged actively in Arkansas, California, Connecticut, Delaware, Florida, Illinois, Massachusetts, Missouri, New York, Oklahoma, Pennsylvania and Texas.

Although thorough investigation disclosed but two instances where California licenses had been obtained by fraud, yet the odium attached to the prominence of Pacific Medical College credentials bartered by the national diploma mill, stirred the California board to renewed interest in strengthening our laws to cope with the purveyors and users of fraudulent professional credentials. In this fight for decent standards and to punish the offenders, the California board was opposed by astute attorneys, and had the funds of the medical board been limited, the battle would have been lost. Witnesses brought from Missouri and elsewhere testified to the purchase and sale of Pacific Medical College diplomas as well as transcripts showing an alleged course of medical study completed by the purchaser. The medical license of the president and owner of the Pacific Medical College was revoked. After four years consumed in the usual court procedures involved in cases on appeal, the higher court sustained the California board's revocation.

California's experience in attempting to penalize those who sell or attempt to use fraudulent credentials disclosed that our state law was deplorably weak.

Difficulties encountered in endeavoring to punish the diploma mill conspirators in California brought about the introduction by the California Board of Medical Examiners of what is termed the "diploma mill bill" passed by the legislature in 1927, now a law which makes illegal the use or sale of any fraudulent diploma, credentials, etc., in an attempt to secure from any of the licensing boards mentioned a license to practice the healing art. The penalty for violation of this statute is one to three years in the state prison or a fine of from \$1000 to \$3000, or by both such fine and imprisonment.

Two individuals have been convicted under this "diploma mill bill," and the publicity given these cases has served as a warning to others.

The effectiveness of a regulatory law such as the "diploma mill bill" depends on the interest of the administrative officer of the Board of Medical Examiners and his intuition born of years of experience in uncovering attempts to secure a medical license by fraud.

## CALIFORNIA MEDICAL LEGISLATION

### Regarding S. B. 175 (Fellom): The Bill to Permit Corporations to Practice Medicine for Profit

On pages 236-237 of the September 1931 number of CALIFORNIA AND WESTERN MEDICINE was printed the California Senate roll call on S. B. 175 (Fellom), which bill would have given corporations the right to practice medicine for profit in California. It was hoped that the information there given would suggest to the officers of county societies that letters of appreciation be sent from their respective county societies and/or members to the state senators who voted against S. B. 175 (Fellom) becoming a law.

The California Medical Association Committee on Public Policy and Legislation, through its chairman, Dr. Junius B. Harris, sent to each of the senators who voted against S. B. 175 (Fellom) the following letter:

My Dear Senator —:

Under separate cover we are sending you a copy of the September issue of California and Western Medi-

cine, the official publication of the California Medical Association, an organization of more than five thousand of the registered physicians and surgeons of California.

On page 236 of this issue under the caption "Medical Legislation," you will find some excerpts from the "Senate Daily Journal," giving the roll call on Senate Bill 175, which bill would have given corporations the right to practice medicine for profit.

It has occurred to us that you might be interested in the brief comments there made.

As you were one of the senators who voted against this bill, we wish you to know that we believe members of the county medical association from your own district, as well as members of the medical profession throughout California are deeply appreciative.

Yours very truly,

JUNIUS B. HARRIS, M. D.,  
Chairman of the Committee on Public Policy and Legislation.

Among replies received from state senators who were so addressed are letters printed below. It is hoped that all county societies will write to their respective senators who voted against Senate Bill 175 (Fellom). Two of the reply letters follow:

November 3, 1931.

My Dear Doctor:

I received your very pleasant letter of October 31, also copy of the medical legislation, and am glad that my vote on the bill referred to was pleasing to you.

Very truly yours,

RALPH E. SWING.

Friend June:

Thanks very much for the magazine and for your kind favor of October 31.

Those of us in public life get so many brickbats an occasional bouquet is a wonderful help to our spirits. Seriously speaking, I was delighted to be of assistance and will be glad to cooperate with you at any time.

Very truly yours,

J. M. INMAN.

## TWENTY-FIVE YEARS AGO\*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume IV, No. 12, December 1906.

From some editorial notes:

*The Gerino Decision.*—In view of the close resemblance of this decision to that handed down by the Supreme Court, already referred to as the case *ex parte* Gerino, it would seem to be not amiss to quote the salient portion of that now celebrated decision.

"It being proper for the legislature to demand some standard of efficiency, as we have seen, we think it equally within its powers to declare that it shall be the same as that required by an association composed of colleges devoted to the work of preparing persons for the profession. Evidently the standard of proficiency in scholarship as a preparation, and the particular studies necessary to secure a fair preparation, must change as the discoveries in natural science open new fields of investigation and suggest or reveal new curative agencies. The legislature cannot successfully prescribe in advance a standard to meet new and changing conditions. The method adopted appears to be sufficiently definite to enable all colleges to reach the required standard when in good faith they desire to do so. . . ."

*Other Plans.*—Other journals have attacked the American Medical Association, its *Journal* and the Council on Pharmacy; other journals will continue to do so, and in other ways. Be assured that the interests opposing this present movement to try and secure simple honesty in the making and marketing of remedies intended for physicians' use are very

\* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.



numerous and very rich and, moreover, are in the habit of doing their work in "ways that are dark"; indeed, they naturally shun the light. For the first time in the history of this country, a considerable number of physicians have gotten together in the formation of medical societies and in supporting the American Medical Association. For the first time in our history it is possible for any considerable number of us to know what is being done and to participate in any particular kind of work or undertaking. So long as that condition remains, so long as the American Medical Association and our component state and county medical societies remain strong and active, the members taking an intelligent interest in what is going on for or against their best interests and those of their patients, just so long will the fight for decency, honesty, and truth be a successful fight. The hope of the man whose profit is in dishonesty, is that discord may be brought about. With a profession divided into warring units, he can succeed; with a profession united in harmonious societies, all working for the common good and the public benefit, he can do nothing—he is forced to be honest or quit. Let no innuendo blind you to the actual facts and the truth in this whole matter. . . .

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*From an article on "Diet in Disease" by George K. Abbott, M. D., Loma Linda.*

The wide difference of opinion, not only among the laity but also among the members of the medical profession, in regard to the natural and best dietary in health has given rise to so many theories and dietetic fads that it is not possible to come to any conclusion as to a proper dietary by the consideration of such. . . .

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*From an article on "Proprietary Medicines and Their Abuses" by George Dock, M. D., Ann Arbor, Michigan.*

Proprietary medicines are substances which someone has an exclusive right to make or sell for medicinal purposes. The exclusive right may depend on secret methods of manufacture, or on patent on the method of preparation, as in Germany, or on process and substance both, as in America, or on a copyright on the substance. . . .

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*From an article on "A Medical Library for San Francisco" by Douglass W. Montgomery, M. D.*

All who love medical literature and the advancement of medicine in this city wish to see the most made of the fine gift of the late Levi C. Lane's widow. That a combination of the County Medical Society's Library and the Lane Library would form a larger, finer foundation than either of them separately, there can be no doubt; but the start must be made properly or the combination will end in failure, and less will be gained than if such a coalition had never been attempted.

## DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M. D.  
Director

**Mortality in 1930.**—An analysis of deaths that occurred in California during 1930 reveals interesting data relative to the trend of mortality in some of the major causes. A total of 66,178 deaths were registered in this state last year. Of these deaths, 16,176 or almost 25 per cent were due to diseases of the circulatory system; more than 15 per cent of all deaths, 7195, were due to cancer and 6394 were due to diseases of the nervous system. Last year, for the first time, deaths from diseases of the nervous system exceeded deaths from tuberculosis in California, of which there were 5629 recorded. More than half of all deaths (53.5 per cent) were due to the four causes

mentioned above—diseases of the circulatory system, cancer, diseases of the nervous system and tuberculosis.

Diseases of the respiratory system claimed 4895 lives, and deaths from nephritis totaled 4813. There were 4460 deaths from diseases of the digestive system and deaths from external causes exclusive of automobile deaths, totaled 3169. Epidemic diseases caused 2793 deaths, and deaths from other general diseases totaled 2655. There were 2573 deaths from early infancy and malformations, and 2356 automobile deaths. There were 1509 suicides. Deaths from non-venereal genito-urinary causes were 914; the total number of deaths from puerperal causes reached 443. Deaths from senility were only 204.

The increasing number of deaths from cancer and diseases of the nervous system provides interesting material for study. The number of deaths from these two causes totaled 13,589, as compared with 16,176 deaths from diseases of the circulatory system. It would appear that there may be a possibility of these two causes, together, eventually displacing the lead which deaths from diseases of the circulatory system have always maintained. The decreasing number of deaths from tuberculosis is conspicuous. The total deaths from this cause in 1930 constituted but 8.5 per cent of the total number of deaths from all causes.

The increasing number of automobile deaths is receiving a great deal of attention. It is interesting to note that more than 40 per cent of all deaths from external causes last year were due to automobile deaths. Deaths in the industries do not occur as frequently as they did in former years, and it would appear that automobile deaths may soon constitute the major portion of all deaths from external causes. The relatively few number of deaths from epidemic diseases, 2793, indicates that efforts exerted in their control have not been in vain. The large number of deaths from suicides constitutes a problem for sociologists and mental hygienists. The increasing number of suicides each year indicates that there may be need for the application of some remedy, undiscovered as yet, to prevent the increase in the number of deaths from this cause.

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**Typhoid Fever Reported.**—A considerable number of cases of typhoid fever, contracted through drinking water from contaminated streams, have been reported in California this summer. A special investigation within the river area of Sacramento County revealed the fact that twenty-six persons who had contracted typhoid fever had been drinking raw river water or had been swimming in the Sacramento or American rivers.

Along the San Lorenzo River in Santa Cruz County ten cases of typhoid fever have been reported during the summer months. The exact source of infection has not been determined, but it is probable that swimming in the polluted San Lorenzo River is responsible for the infection.

Discharge of sewage from the Boulder Creek district into the San Lorenzo River has been discontinued. Sewage in the future will be disposed of on the premises of each individual owner by means of septic tanks or cesspools. In making this change 101 septic tanks and cesspools have been provided. Practically all improvements with reference to sewage disposal on premises situated adjacent to the San Lorenzo River and its tributaries have been completed. The citizens of Brookdale are now making arrangements to install a new sewer system under the State Act.

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**Cold Storage Investigation.**—During the past month an investigation was undertaken to determine how the Cold Storage Act is being observed with respect to the requirement that persons owning articles of food in storage for one year must have a permit from the State Department of Public Health in order to obtain an extension of the storage period. The investigation



revealed the fact that considerable amounts of food-stuffs had been in storage for twelve months. Correspondence with the owners of the products has resulted in compliance with the regulation pertaining to obtaining permits for the extension of the storage periods.

At the end of the quarter, June 30, 1931, there were held in cold storage in California warehouses nearly ten million pounds of fresh fruit; more than six million pounds of vegetables; nearly six million pounds of meat; three and one-fourth million pounds of poultry; nearly four million pounds of dried, frozen and preserved fruit; two million pounds of fish; nearly one and one-half million pounds of citrus fruits; two and three-fourths million pounds of cheese; two and three-fourths million pounds of butter; six and three-fourths million pounds of eggmeat; and one and one-fourth million cases of eggs.

## BOARD OF MEDICAL EXAMINERS OF THE STATE OF CALIFORNIA

By CHARLES B. PINKHAM, M. D.  
Secretary

### Special Notice—In Re Narcotic Prescriptions

Again we urge licentiates to read carefully the pink narcotic warning insert page in each directory published annually by the Board of Medical Examiners, a copy of which is sent to each licentiate. Recently two licentiates in northern California have illegally prescribed large quantities of morphin for an addict based solely on his claim of disability unconfirmed by a physical examination. Reports tell of a woman recently operating in northern California who appears in a physician's office with a small boy in need of a tonsillectomy. Arrangements are made for operation, she then relates her blind father is suffering from angina pectoris, and several doctors have illegally given her a prescription for narcotics to relieve the mythical father.

Reports relate that an alleged narcotic addict recently obtained from a Vallejo physician, over a period of thirteen months, 3475 grains of morphin. This addict is visiting physicians, and presents a statement certifying that he is suffering from cancer of the stomach, diagnosis confirmed by x-ray examination at the San Francisco Hospital followed by two operations, also treatment at the Southern Pacific Hospital, San Francisco. However, the claims of malignancy or cancer in any form are unsubstantiated by the hospital records. This individual admitted that he is a narcotic addict, and, according to his own statement, he has been supplying his wife and two of his brothers, all of whom are addicts.

*Don't be fooled by stories of transient individuals seeking narcotics.*

*Don't prescribe narcotics based on presentation of a letter referring to alleged infirmities, which may be forged.*

*Don't prescribe for addiction unless the individual is under treatment in an institution.*

*Don't heed a plea for a small supply of morphin to help out until an asserted near-by destination can be reached.*

### News Items, December 1931

"Dr. P. T. Phillips of Santa Cruz today was elected to his fifteenth consecutive term as president of the State Board of Medical Examiners. At the same time Dr. Charles B. Pinkham, San Francisco, was named to serve his nineteenth term as secretary. Dr. Harry V. Brown, Glendale, was elected vice-president to succeed Dr. William Molony, Los Angeles, whose term has expired" (Sacramento *Bee*, October 20, 1931).

On September 5, 1929, the articles of incorporation of the "Cale College of Chiropractic," Los Angeles, were amended, making its name the "Southern California College of Chiropractic." On October 6, 1931, the articles were further amended, changing its name to the "College of Chiropractic Physicians and Surgeons." A recent opinion rendered by the Attorney General to the Board of Chiropractic Examiners holds that graduates of this institution should be admitted to examination provided they actually teach chiropractic and meet the schedule of minimum educational requirements set forth in Section 5 of the Chiropractic Initiative, and it is further recommended that the Board of Chiropractic Examiners, when licensing a graduate of any institution having this or a similar name, expressly advise such licensee that his license only authorizes him to practice chiropractic, and does not authorize him to practice as a physician or (and) surgeon.

The "Za Alchemists Herbalist College," Los Angeles, has been added to the list of corporations issuing diplomas in this state. Their diploma relates that it has been issued after the completion of "the full course of instructions in herbal histology, physiology, plant affinity, the ancient religious shepherds' mystic secret doctrine," and the holder "is deemed by us fully qualified in this beneficent therapy."

The eyesight swindlers are again operating in California, according to a report made by Mrs. J. M. Monroe, Westminster, Orange County, who relates that an individual giving the name of Dr. L. Eldridge, claiming to be from the "St. Francis Clinic, 1411 South Spring Street, Los Angeles" (although Spring Street ends at Ninth), recently mulcted her out of a small sum of money by the old radium drop method described in the pamphlet "Eyesight Swindlers" published by the secretary of the Board of Medical Examiners. Mrs. Monroe is reported to have instantly identified from said pamphlet the picture of Simon Mohr as the individual who posed as Dr. L. Eldridge.

"The license of Dr. George Gillespie, San Francisco chiropractor convicted of second degree murder last June as a result of a fatal illegal operation, today had been revoked by the State Board of Medical Examiners" (San Francisco *Call-Bulletin*, October 21, 1931). Both the drugless practitioner certificate and the certificate to practice chiropody held by Doctor Gillespie were revoked.

Reports relate that Guy N. E. Grosse, licensed chiropractor on October 1, 1931, pleaded guilty in the Justice Court of Santa Cruz to violation of the Medical Practice Act, judgment being suspended on condition that he no further violate the law.

Reports relate that the Appellate Division of the Superior Court in San Francisco recently affirmed the verdict of the Municipal Court of that city which fined Arthur J. Green \$100 on a charge of violation of the Medical Practice Act.

Reports relate that A. E. Harland in the Municipal Court of the City of Los Angeles pleaded guilty on October 13, 1931, to a charge of violating the Medical Practice Act and was sentenced to pay a fine of \$100 or serve ten days in the city jail, sentence being suspended on condition that he no longer violate the provisions of the Medical Practice Act.

"Carl C. Lee, Chinese herb specialist, today appealed his conviction in Justice Court on a charge of practicing medicine without a license to the Superior Court. The notice of appeal was made by Attorney



Clifford Russell after Justice of the Peace H. P. Andrews had denied Lee a new trial and sentenced the Chinese to pay a fine of \$175 or serve sixty days in the city jail. In passing sentence, Judge Andrews said he would be lenient and not impose the jail sentence because it was Lee's first offense. Lee was convicted by a jury" (Sacramento *Bee*, October 29, 1931).

Reports relate that J. E. Machado, Oxnard druggist who advertised himself as a healer and curer of diseases, on October 27, 1931, in Justice Court, Santa Paula, was found guilty of violation of the Medical Practice Act and sentenced to pay a fine of \$100 or serve fifty days in the city jail. Sentence was suspended on his promise to discontinue violation of the law.

Convicted of alleged illegal practices, Dr. Woodward B. Mayo of Los Angeles was today forbidden to practice in California by the State Board of Medical Examiners, according to press dispatches from Sacramento" . . . (Los Angeles *Express*, October 22, 1931).

The license of Denwood N. L. Newbury, M. D., was revoked by the Board of Medical Examiners, October 20, 1931, following a hearing on a charge of alleged narcotic addiction.

Reports relate that an individual calling himself Doctor Osmun and alleging his connection with a San Diego laboratory and a Hollywood laboratory is alleged to be soliciting licentiates offering an attractive insurance scheme. Claiming to represent leading insurance companies, he is reported to be collecting a small sum of money in advance to pay for postage necessary to send the doctor's name to the insurance company. He is described as "rather heavy set, five feet 9 inches tall, somewhat prominent teeth, heavy jaw, sunburned face" with "an enthusiastic effusive manner . . . had a sheriff's license or badge in his pocket and said he was sworn in as an officer and could arrest anyone though he had never done so. . . ."

Reports relate that Helen Parkinson on October 14, 1931, pleaded guilty in the Justice Court, Santa Barbara, to a charge of violation of the Medical Practice Act, and was sentenced to pay a fine of \$200, fine being suspended on condition that she do not further violate the Medical Practice Act.

Paul Pretzell, who, according to reports, was on November 25, 1930, sentenced at Santa Ana to serve six months in the county jail on a charge of violation of the Medical Practice Act, was recently reported to again be violating the Medical Practice Act in San Francisco; however, he left for Seattle before he could be apprehended.

The records show that on November 4, 1931, in the Municipal Court of Los Angeles, John T. Richter was sentenced to pay a fine of \$200 or serve twenty days in the city jail on a charge of violation of the Medical Practice Act, "sentence being suspended on condition that he not use the prefix 'Dr.' or otherwise violate the Medical Practice Act."

"Charges of burglary and forgery pending against Dr. Eugene Settles will be dismissed, it was announced at the District Attorney's office yesterday after Judge C. N. Andrews, on recommendation of Dr. H. F. Andrews, had committed the physician to Patton State Hospital for the Insane. Settles had been found to be addicted to the use of drugs" (San Diego *Union*, October 2, 1931). On October 20, 1931, the medical license of Eugene Lee Settles, M. D., was revoked based upon charges of narcotic addiction.

Reports show that Tom Hin Kong, Chinese herbalist, on October 29, 1931, pleaded guilty in the Justice Court of Sacramento to a charge of violation of the Medical Practice Act, and paid a fine of \$125.

The records show that on October 16, 1931, Ruby Warmick, in the Redondo Justice Court, pleaded guilty to a violation of the Medical Practice Act and was sentenced to pay a fine of \$300 or serve sixty days in the county jail; sentence suspended, and she was placed on probation for a period of six months.

An impostor using the name of Dr. Harold D. Warnock, alias Dr. Archibald Warnock, is reported sought by the police on a charge of passing a fictitious check for \$75 on a Sacramento hotel.

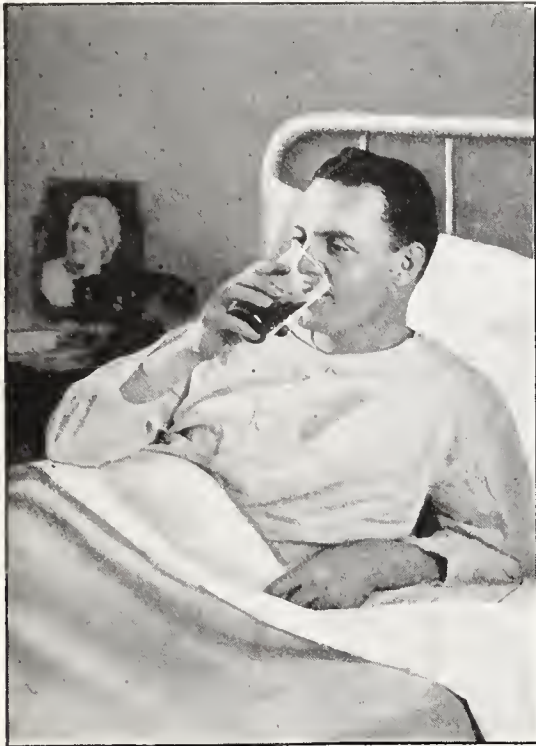
On October 13, 1931, W. G. Weir pleaded guilty in the Municipal Court of Los Angeles to a charge of violation of the Medical Practice Act, and was sentenced to pay a fine of \$100 or serve ten days in the city jail, sentence being suspended.

C. M. Weston, Huntington Park, California, is reported to have pleaded guilty on October 15, 1931, to violation of the Medical Practice Act, and sentenced to sixty days in jail, sentence being suspended on condition that he do not again violate the Medical Practice Act.

*Limitation of Title of Specialist.*—An amendment to the Medical Act forbids any physician from holding himself out as a specialist or advertising himself as such unless and until he has received a specialist's certificate from the University of Alberta. The question has naturally arisen, would a physician who restricted his practice to any branch of the healing art and so advised the public through a card in the press or by such notice on his office door be thus violating the Act, unless he has a certificate from the university? This matter has been clarified by the university on the advice of a competent legal authority as follows: "A specialist in the practice of the regular medical profession is one who has made a special study of a group of diseases for such time and in such manner as defined by the Senate of the University, and who holds a certificate and is actively engaged in the practice of his specialty. Anyone who holds himself out to the public in the Province of Alberta as limiting his practice to any group of diseases is to be regarded as holding himself out to the public as a specialist, and is not qualified for the practice of that specialty until such person has received the diploma of the Senate of the University. Any representation which directly or indirectly conveys to the public the impression that a practitioner is so qualified, unless he holds the certificate of the Senate of the University of Alberta, should be regarded as an infringement of the Medical Act."—*Canad. M. A. J.*, September, 1931. (See, also, page 474 in this issue of CALIFORNIA AND WESTERN MEDICINE.)

*Noise a Misdemeanor in England.*—In England the law makes it a misdemeanor to annoy residents by unnecessary noise. Perhaps it is too much to expect any action along this line here in the United States, for we have less respect for law than they have in England, but it would be a blessing to sick and well if we could suppress unnecessary noise, and we have in mind the fiend who has his radio or phonograph near an open window and insists upon keeping his neighbors disturbed at hours when decent people are asleep, and the automobile drivers who take a special delight in running with the exhaust open and tooting the horn viciously at all hours after midnight.—Editorial, *Indiana Medical Association Journal*, September 1930.





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Cocomalt is a balanced combination of milk protein, milk minerals, concentrated cocoa, sugar, barley malt and whole egg. Made as directed, it increases the caloric value of a glass of milk 72%—adding 40% more protein, 56% more mineral salts, 188% more carbohydrates, but only 12% more fat.

Cocomalt contains Vitamin D, the anti-rachitic "sunshine" vitamin. Especially valuable for growing children, convalescents, nursing and expectant mothers. At all grocery and leading drug stores. Mail coupon for free trial can.

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Please send me, without charge, a trial can of Cocomalt.

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GROWERS ASSOCIATION

*Oxnard, California*

## TRUTH ABOUT MEDICINES

(Continued from Page 31)

who have been actively associated with the Committee on Foods can realize the vast amount of good already accomplished.—*Journal of the American Medical Association*, October 3, 1931, p. 1004.

**Misbranded "Patent Medicines."**—The following products have been the subject of prosecution by the Food and Drugs Administration of the United States Department of Agriculture: Red Cross Chill and Fever Tonic (Cash Bros. Drug Co., Inc.), consisting essentially of quinin sulphate, iron (ferric) chlorid, Epsom salt, and a small amount of hydrochloric acid. Vindor Diabetic Wine (Zarol Medical Research, Inc.), consisting essentially of extracts of plant drugs, including cinchona, a phosphorus compound, alcohol, and water. Pinoleum (Llompert Bros. Co.), consisting essentially of mineral oil containing small amounts of camphor, menthol and pine, eucalyptus and cassia oils. Laxative Cold and Grippe Tablets (Parke, Davis & Co.), consisting essentially of acetanilid, cinchonidin, and a laxative plant drug. Lax Cold Grippe Tablets (Strong-Cobb & Co.), consisting essentially of acetanilid, cinchonidin, and a laxative plant drug. Chill-Check (Bedsole-Colvin-O'Dell Drug Co.), consisting essentially of Epsom salt, iron chlorid, quinin sulphate, and water. Stopkofin (Piuma Italian Pharmacy), consisting essentially of ammonium chlorid, ammonium carbonate, potassium iodid, antimony and potassium tartrate, extracts of plant drugs including podophyllum, a trace of chloroform, alcohol, sugar, and water.—*Journal of the American Medical Association*, October 3, 1931, p. 1019.

**Lacto-Kelpol Not Acceptable for New and Non-official Remedies.**—The Council on Pharmacy and Chemistry reports that Lacto-Kelpol is the proprietary name under which the Kelp-Ol Laboratories, Inc., submitted a preparation stated to consist of

(Continued on Page 36)



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- for the cleanly method of its production.
- for the truthful claims of its advertising.

*Baked by*

**The Best Baking  
Company, Inc**

Oakland, Calif.

## TRUTH ABOUT MEDICINES

(Continued from Page 34)

lactic acid, agar-agar, mineral oil, sodium benzoate, water, and flavoring. The chief claim for this product was that it is prepared by a special process whereby the lactic acid is "locked up with the agar so that it is unaffected by the gastric juice." The Council declared the product unacceptable for New and Non-official Remedies because there was no satisfactory evidence for the claim that the lactic acid contained in Lacto-Kelpol emulsion behaves essentially differently from a dilute solution of lactic acid. When the Council's report was submitted to the Kelp-Ol Laboratories, postponement was requested in order that further evidence might be submitted. The firm submitted further evidence, but this evidence did not permit acceptance by the Council of the statement that the behavior of Lacto-Kelpol in the human intestine is essentially different from that of a dilute solution of lactic acid, and accordingly the Council confirmed its decision declaring Lacto-Kelpol unacceptable for New and Nonofficial Remedies.—*Journal of the American Association*, October 10, 1931, p. 1077.

**Is Manganese an Essential Element?**—Considerable has been written of late about the possible rôle of copper as a "promoter" of hemoglobin formation in certain types of anemia. It appears to act as a supplement to iron in this process. A similar function has been attributed to other elements, notably manganese, though the claims are still stoutly denied by the majority of investigators. Manganese is constantly present in animal tissues and this has led to the assumption that it is likely to promote some useful purpose. Experiments have been reported in which the addition of traces of manganese to a diet of whole cow's milk supplemented with iron and copper has a favorable effect on the growth of mice and that without manganese they failed to ovulate properly. The latter was true also for female rats.

(Continued on Page 45)



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BEAUTIFULLY located in a scenic park—Rooms large and sunny—Fine Cuisine—Unsurpassed Operating, X-Ray and Maternity Departments.



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THE “Thermotax” Diathermy apparatus offers a practical and economical means of producing general body temperatures for this new type therapy.

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**Diabetes, Nephritis, Obesity,  
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# APPROVED CLINICAL LABORATORIES

Excerpts from American Medical Association Essentials for an Approved Clinical Laboratory

## DEFINITION

*"\* \* \* A clinical pathologic laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body."*

*"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."*

*"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."*

## THE DIRECTOR

*"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."*

*"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."*

*"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."*

*"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."*

## RECORDS

*"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."*

## PUBLICITY

*"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."*

## FEES

*"\* \* \* There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. \* \* \*"*

The following laboratories in California are among those approved by the Council on Medical Education and Hospitals of the American Medical Association:

Clinical Laboratory of Drs. W. V. Brem, A. H. Zeiler and R. W. Hammack,  
Pacific Mutual Building, Los Angeles, California.

Dr. Marion H. Lippman's Laboratory, Butler Building, 135 Stockton Street,  
San Francisco.

The Western Laboratories, 2404 Broadway, Oakland.

These laboratories use only standard methods and are fully equipped with the most modern apparatus to make all clinical examinations of value in: Pathology (frozen sections when ordered), Bacteriology, Chemistry, Hematology, Serology, Medico-legal, Basal metabolism, Blood chemistry, Autogenous vaccines and all other laboratory aids in diagnosis.

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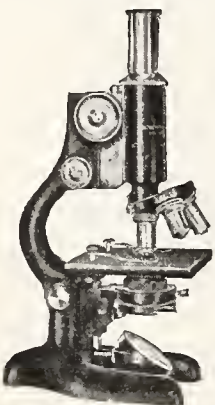
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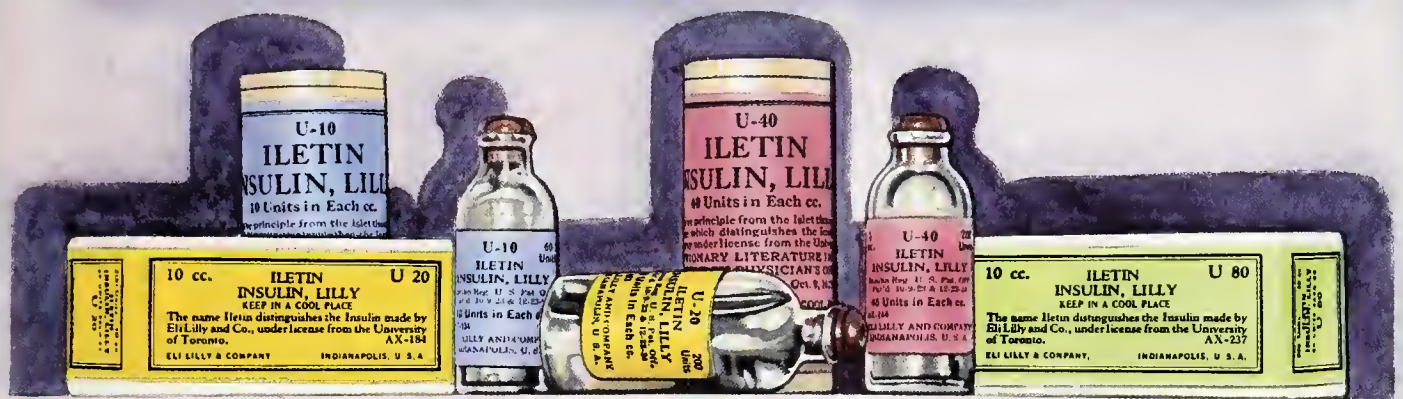
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*THE BOY  
WHO FOUND RAINBOWS  
IN COAL-TAR*

ONE Easter vacation in 1856, 17-year-old William Henry Perkin, a student-assistant in the Royal College of Chemistry, was toiling in an improvised laboratory under the eaves of his English home.

"Throw the rubbish away!" croaked unimaginative Common Sense, when the boy poured in a red fluid and got a dirty, sticky, dark mass at the bottom of his test tube. "Examine it!" whispered Science. "It may be worth something!"

Science was right. Out of that ugly dark mud came a lovely violet-purple dye. This "Mauve" was the first aniline dye ever made from coal-tar.

But young Perkin did more than found an industry. His experiments, and the experiments of other men in those early days, showed the way to a new, *creative* chemistry.

Men began to *build* with atoms.

---

## *THE HOUSE OF RESEARCH*

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**P**ARKE-DAVIS research chemists often spend years in producing a single synthetic chemical compound. For example, in a recent search for a synthetic drug to accomplish a certain purpose, hundreds of compounds were patiently built up. Each in turn was put to the severest tests. Finally *one* was obtained that met our exacting requirements.

Such is the spirit of the Parke-Davis laboratories. Steadfastly adhering to the high ideals that are woven into the fabric of the organization, stubbornly refusing to compromise with quality, the loyal men and women of our staff feel a keen personal pride in the confidence that the medical and pharmaceutical professions so willingly repose in the products which bear the Parke-Davis label.

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## The Seal Sale's 25th Anniversary

THE first Christmas Seal Sale in the United States was promoted 25 years ago by Emily P. Bissell of Wilmington, Delaware, to raise money for a tuberculosis hospital on the banks of the Brandywine River. Ever since, she has been identified with the campaign against tuberculosis both in her home state and in the nation, and during this period has witnessed the inroads of the disease reduced by half.

The sum raised in 1907 was devoted to the single institution she had in view; today there are more than two thousand tuberculosis associations and committees engaged in raising funds with which to fight tuberculosis in their own communities. As a result of these activities, tuberculosis sanatoria have been erected; summer camps for children conducted; public health nurses maintained, and educational work prosecuted. Yet there is a great deal left to do, for tuberculosis is still the leading cause of death among persons between 15 and 45 years of age.

At the last annual meeting of the National Tuberculosis Association, Miss Bissell was the guest of honor at a session held to commemorate the 25th Christmas Seal Sale. She explained how she came to adopt this means of raising money.

"It was not a sudden inspiration or detached idea," she said. "I had been looking for something of the sort for years. I went into volunteer social work in my teens, serving on boards and committees, and I had learned that it is comparatively easy to get five and ten-dollar subscriptions. It is also possible, if the confidence of the community is obtained, to get fairly large contributions, into the thousands of dollars. But the real difficulty is to gain the participation of the huge general public—those able to give from ten cents to a dollar—who should be reached in any cause where popular education and co-operation are needed.

"I never found the answer to this question until I read an article by Jacob Riis describing a Christmas Seal which the Danish government sold like stamps in the post offices for the benefit of a children's sanatorium. Einar Holboell, a post office clerk, originated the idea, and it had been unusually successful.

"Just at the time I read about this, a group of physicians in Wilmington who had established a shack among the hills with one nurse and half a dozen patients, came to me in despair and begged me to help them, for their money was gone.

"I put the matter up to the Delaware Chapter of the Red Cross and they gave me the power to go ahead—on condition that I raise the money myself to finance the sale, as the chapter was powerless to do so."

Miss Bissell then described how she consulted the best advertising men she could find for advice and suggestions. All prophesied failure. Yet the large stores in Philadelphia came in, the newspapers opened their columns, and the sale was permitted in post offices and other public places. The following year the sale was extended throughout the nation, still against the advice of advertising men who considered the success of the first campaign to be due to novelty.

"I selected from a gazette of newspapers six thousand journals to which I sent copy about the seal and its messages," said Miss Bissell. "As soon as this was published the national Red Cross, which that year sold the seals from Washington headquarters, had to put on twenty clerks to cope with the rush orders.

"But the Red Cross is an emergency organization. It must keep its personnel free for emergencies. So when the World War called for full activity, the Christmas Seal Sale was turned over to the National Tuberculosis Association, which has conducted it since that time not only as a fund raising enterprise but also as a symbol of health with an important educational function.

"As I look at the Christmas Seal today I see the hordes of people who had no hope, and who have it now.

"I see thousands of doctors and nurses alert to help and save life.

"I see thousands of little children, crippled and sickly, who have never had a chance for health and strength before.

"I see millions of great, generous American people, rich and poor, upon whom we can rely to carry the Christmas Seal and the work it presents forward year by year."



# CALSO WATER

PALATABLE ALKALINE SPARKLING

*Not a Laxative*

**Calso Water:** An efficient method of supplying the normal ALKALINE SALTS for counteracting ACIDOSIS.

**Calso Water:** Made of distilled water and the ALKALINE SALTS (C. P.) normally present in the healthy body.

**Calso Water:** Counteracts and prevents ACIDOSIS, maintains the ALKALINE RESERVE.



## THE CALSO COMPANY

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## POTTENGER SANATORIUM AND CLINIC

FOR DISEASES OF THE CHEST

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Twenty-five years' experience in meeting the problems of the tuberculous patient.

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A clinic for the study and diagnosis of all diseases of the chest, including asthma, lung abscess and bronchiectasis is maintained in connection with the institution.

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# The California Sanatorium

Belmont (San Mateo County), California



## FOR THE TREATMENT OF TUBERCULOSIS

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Thirty beds for maternity patients in a separate building, newly equipped.

Complete services of all kinds for women and children.  
Infant feeding a specialty.

House staff consists of three resident physicians and eight interns.

Accredited by the Council on Medical Education and Hospitals of the  
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Institutional member of League for the Conservation of Public Health.

The oldest school of nursing in the West.

Director of Hospital  
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A splendid opportunity for two or three specialists in any of the following fields, viz., Neurology, Psychiatry, Orthopedics, Obstetrics, Gynecology or Dermatology, to associate themselves with several other specialists for whom offices are being planned at this time. Your practice to remain independent, but to share large reception room and other overhead expenses. Result: A fine office planned to suit your own needs plus advantages of coöperation with excellent group of specialists, and finally minimum overhead.

Also a fine opening for young physician to share office with a Surgeon and Gynecologist; lady preferred.

Apply to

CHAS. W. SMITH, *Building Manager*  
Room 415 450 Sutter Street  
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## TRUTH ABOUT MEDICINES

(Continued from Page 36)

These experiments indicate that manganese may be closely connected with the reproductive organs. Other investigators also insist that manganese does not take part in blood regeneration, but that the element aids in rendering a diet complete for the support of reproduction and suckling of young.—*Journal of the American Medical Association*, October 10, 1931, p. 1078.

**Donhide—Another Nostrum for Epilepsy.**—Numerous attempts to relieve epilepsy have resulted in the development of certain well known drugs of a sedative character which control the attacks to some extent but do not constitute a "cure." The Bureau of Investigation of the American Medical Association has a pamphlet which lists a considerable number of preparations purveyed directly to the public with unwarranted claims as to their merit in this disease. Practically all these preparations have in the past been found to contain bromids or phenobarbital (luminal) as their potent ingredient. The most recent addition to this class of preparations is "Donhide," said to be made by the Riverside Laboratories, New York. The advertising is unusually insidious—even governors of states have been urged to use the preparation in state institutions. When the purveyor of the nostrum was informed that the statement of composition of Donhide, namely, sodium bromid, ammonium bromid, scutellaria, cinchona, glycerin, and aqua distillata, was unquantitative and therefore of little value, and that there was no reason to believe that this medicament could do anything that any other mixture of bromid could not do, the firm replied that it acted solely in the capacity of sales and distributing agent and that the manufacturer is the Riverside Laboratories, and that because of the information received the composition had been modified; it also offered to

(Continued on Page 47)

## Better Service Lower Rates



## CALIFORNIA'S ENCHANTED SPA

Hot Springs      Steam Caves  
Mineral Waters

Arrowhead Spring facilities include a well equipped laboratory—complete physiotherapy and hydrotherapy departments—a thoroughly trained and skillful staff of masseurs and masseuses.

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A complete metabolic clinic—diet kitchen—arsenical steam caves—radio-active mud baths—and the hottest mineral springs in the world.

Patients suffering from contagious diseases not admitted.

Located in the foothills near the desert—not a mountain resort.

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*Resident Physician*

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*Managing Director*

ARROWHEAD SPRINGS  
♦♦♦ CALIFORNIA ♦♦♦

## *Yuletide Greetings!*

THE JAMES H. BARRY COMPANY extends greetings and good cheer to its host of customers and friends as another Yuletide draws near. This past year, more than ever, has this firm reason to be particularly grateful for the continuation of that delightful business relationship, such as is rarely evidenced between the buyer and seller of printed matter.

TO CALIFORNIA AND WESTERN MEDICINE—its business, editorial and advertising staffs, and its many readers who have contributed so largely toward our holiday mood by reciprocating our “good-will” policy, our appreciation can best be reflected by the continued application of our highest craftsmanship to future issues of this magazine.

Therefore, at this season we are content to relegate “shop talk” to the limbo of the eleven months gone by. We desire merely to make contagious our feeling of good cheer and to wish the entire CALIFORNIA AND WESTERN MEDICINE family a *Merry Christmas*.

### The James H. Barry Co.

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A SANITARIUM FOR THE TREATMENT OF GENERAL AND NERVOUS DISEASES  
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Ptosis, Sacro-Iliac and Maternity Belts / Crutches  
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AGENTS FOR BARD-PARKER COMPANY

## TRUTH ABOUT MEDICINES

(Continued from Page 45)

find a new name and objected to the charge that the claims were not warranted. Subsequently a statement was received from the Manhasset Chemical Co., Inc., stating that the sale and promotion of Donhide had been discontinued.—*Journal of the American Medical Association*, October 10, 1931. p. 1079.

**Solution Normet Not Acceptable for New and Non-official Remedies.**—Solution Normet Medical and Solution Normet Surgical are marketed in the United States by the High Chemical Co., Philadelphia. According to the advertising, the "Medical" differs from the "Surgical" solution in that it contains less manganese. The Council on Pharmacy and Chemistry reports that no quantitative composition is given in the available advertising or on the trade package examined, but that such a statement is contained in an article which has been published by Normet in a French journal. According to this the preparation contains stated amounts of sodium citrate, calcium citrate, magnesium citrate, iron and ammonium citrate, and manganese citrate dissolved in distilled water. The Council reports that the available literature indicates that none of the constituents of Normet's Solution, nor all of them combined, are capable of exerting any extraordinary restorative value in any of the conditions enumerated; but that it is true that the infusion of physiologic solution of sodium chlorid alone often causes marked improvement after the loss of blood, though there is no striking difference between the death rate in dogs that have received physiologic solution of sodium chlorid and those that have not, following severe hemorrhage. The Council declared Normet's Solution unacceptable for New and Nonofficial Remedies because it is an unscientific mixture marketed with unwarranted therapeutic claims.—*Journal of the American Medical Association*, October 17, 1931, p. 1149.



## MEN ARE NOT IMMUNE

**E**XCESSIVE perspiration does not search out its victims by sex. Men just as often suffer from its discomforts as women. This is especially true of hyperidrosis of the axillae, hands and feet.

The physical discomfort and social implication of excessive perspiration are equally distressing to men and women.

## NONSPI

(AN ANTISEPTIC LIQUID)

*checks the perspiration and prevents the odor, too. It needs to be applied only once or twice a week to those parts of the body not exposed to adequate ventilation. Trial supply gladly sent to physicians on request.*

YES, I'd like to try NONSPI. Please send me a free trial supply.

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# Colfax School for the Tuberculous

*Colfax, California*

(Altitude 2400 feet)

This institution is for the treatment of medical tuberculosis and of selected cases of extrapulmonary (so-called surgical) tuberculosis.

The Colfax School for the Tuberculous consists of five Hospital Units with beds for patients who come unattended and a Housekeeping Cottage Colony for patients and their families.

The Colfax School for the Tuberculous offers the following advantages:

1. Patients are given individual care by experienced tuberculosis specialists. The patient is treated according to his individual needs.
2. Patients are taught how to secure an arrest of their disease, how to remain well when once the disease is arrested, and how to prevent the spread of the disease.
3. Patients have the advantage of modern laboratory aids to diagnosis and of all modern therapeutic agencies.
4. The climate of Colfax enables the patient to take the cure without discomfort twelve months in the year. We believe climate is secondary to medical supervision and rest, but the fact remains that it is easier to "cure" under good climatic conditions than where these climatic conditions are absent.
5. Colfax is accessible. It is on the main line of the Ogden Route of the Southern Pacific R. R. and has excellent train service. It can be reached by paved highway, being on the Victory Highway, with paved roads all the way to Colfax.

*For further information address*

ROBERT A. PEERS, M. D., *Medical Director*  
*Colfax, California*





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SIX YEARS of intensive work, which enlisted the services of eminent clinicians, technicians and biological chemists, have resulted in our being able to offer to the medical profession a most efficient weapon in combating *rickets*.

Clinical tests and observations, over a period of three winters, show conclusively that *any baby taking its daily ration of DRYCO is protected thereby against rickets. No other antirachitic agent is necessary.*

ALL DRYCO IN THE HANDS OF  
DRUGGISTS IS IRRADIATED

PRESCRIBE

# DRYCO

*Made from superior quality milk from which part of the butterfat has been removed, irradiated by the ultraviolet ray, under license by the Wisconsin Alumni Research Foundation, (U. S. Patent No. 1,680,818) and then dried by the "Just" Roller Process.*

#### COUPON

Send for samples and new booklet: "Irradiated Dryco."  
The Dry Milk Co., Inc., Dept. CW, 205 East 42nd  
Street, New York, N.Y.

# VACCINE THERAPY in RESPIRATORY INFECTIONS

as reported by Roy P. Forbes, of the Department of Pediatrics, Medical School, University of Colorado—*Archives of Pediatrics*—January, February, March, April, 1931.

A review of the literature since 1918 shows a preponderance of articles favorable to the use of respiratory vaccine as a prophylactic—21 favorable as against 2 unfavorable reports.

On its use, therapeutically, there have been (including Forbes') 8 favorable and one unfavorable reports since 1926. Previous to this date the majority of reports were unfavorable.

### \*TABULATION OF FORBES' CASES

| DIAGNOSIS                                       | No. of Cases                      | % Good Results | % Fair Results | % Poor Results |
|-------------------------------------------------|-----------------------------------|----------------|----------------|----------------|
| Influenza .....                                 | 67                                | 62.8           | 29.8           | 7.4            |
| Acute Rhinopharyngitis .....                    | 39                                | 60.0           | 20.0           | 20.0           |
| Sub-acute Rhinopharyngitis .....                | 13                                | 92.4           | 7.6            | .....          |
| Acute Laryngitis .....                          | 27                                | 55.6           | 40.7           | 3.7            |
| Acute Bronchitis .....                          | 60                                | 80.7           | 18.3           | 2.9            |
| Sub-acute Bronchitis .....                      | 8                                 | 75.0           | 12.5           | 12.5           |
| Asthmatic Bronchitis .....                      | 18                                | 55.5           | 22.25          | 22.25          |
| TOTAL.....                                      | 232                               | 68.86          | 21.58          | 9.81           |
| Pneumonia, all cases.....                       | Vaccine ..... 76 cases 9 deaths   |                |                |                |
|                                                 | Controls ..... 66 cases 18 deaths |                |                |                |
| All cases treated within 48 hours of onset..... | Vaccine ..... 23 cases 1 death    |                |                |                |
|                                                 | Controls ..... 40 cases 6 deaths  |                |                |                |

THE CUTTER LABORATORY,  
Berkeley, California.

Gentlemen: Please mail reprint of Forbes' article.

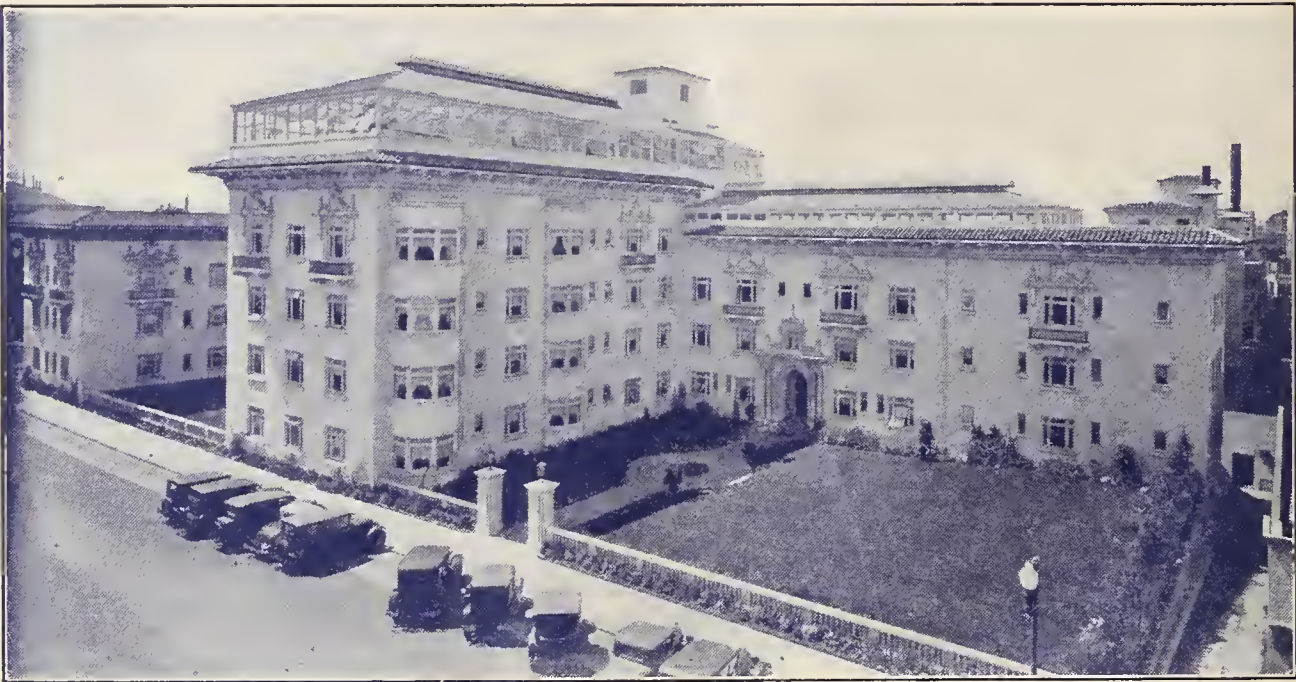
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\* Cutter's Respiratory Vaccine used in all cases in Forbes' series.

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